



**Base Realignment and Closure  
Program Management Office West  
1455 Frazee Road, Suite 900  
San Diego, California 92108-4310**

**DRAFT  
FORMER BUILDING 88 INVESTIGATION REPORT  
July 21, 2006**

**FORMER NAVAL AIR STATION MOFFETT FIELD  
MOFFETT FIELD, CALIFORNIA**

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**FORMER NAVAL AIR STATION MOFFETT FIELD**  
**MOFFETT FIELD, CALIFORNIA**

**DCN: FWSD-RAC-06-0206**



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## ABBREVIATIONS AND ACRONYMS

µg/kg	micrograms per kilogram
µg/L	micrograms per liter
µmhos/cm	micromhos per centimeter
1,1-DCA	1,1-dichloroethane
ASTM	American Society for Testing and Materials
bgs	below ground surface
C	Celsius
CA	California
Ca	calcium
CaCO <sub>3</sub>	calcium carbonate
cc	cubic centimeter
cis-1,2-DCE	cis-1,2-dichloroethene
Cl	chloride
cm	centimeter
CO <sub>3</sub>	carbonate
COC	constituent of concern
CPT	cone penetrometer testing
cu yd	cubic yard
DHC	<i>Dehalococcoides</i> spp.
DNAPL	dense non-aqueous phase liquid
DoD	Department of Defense
DPT	direct push technology
EOS	Edible Oil Substate
EPA	U.S. Environmental Protection Agency
FD	field duplicate
Fe	iron
FWENC	Foster Wheeler Environmental Corporation
g	grams
GW	groundwater
HCO <sub>3</sub>	bicarbonate

## ABBREVIATIONS AND ACRONYMS

(Continued)

HDPE	high-density polyethylene
HLA	Harding Lawson Associates
HRC®	Hydrogen Release Compound
J	estimated value
ISOTEC	In-Situ Oxidative Technologies, Inc.
K	potassium
L/kg	liters per kilogram
L/min	liter per minute
MCL	Maximum Contaminant Level
MDL	method detection limit
MEW	Middlefield-Ellis-Whisman
Mg	magnesium
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
mL	milliliter
mm	millimeters
mM	millimoles
MS	matrix spike
MSD	matrix spike duplicate
mV	millivolts
Na	sodium
N/A	not applicable
NA	not analyzed
NAS	Naval Air Station
NASA	National Aeronautics and Space Administration
ND	compound analyzed for, but not detected at MDL
nm	nanometers
NO <sub>3</sub>	nitrite
NS	physiological status markers not detected
NTU	nephelometric turbidity unit

## ABBREVIATIONS AND ACRONYMS

(Continued)

PCE	tetrachloroethene
PID	photoionization detector
PLFA	phospholipids fatty acid
ppbv	parts per billion by volume
ppm	parts per million
PRC	PRC Environmental Management, Inc.
PRG	Preliminary Remediation Goal
QA	quality assurance
QC	quality control
R	quality control indicates that data is not usable
RAO	Remedial Action Objective
RPD	relative percent difference
SO <sub>4</sub>	sulfate
Ssp	species
TCE	trichloroethene
TCE R-Dase	trichloroethene reductase
TIC	tentatively identified compound
TOC	total organic carbon
TtEMI	Tetra Tech EM, Inc.
TtFW	Tetra Tech FW, Inc.
U	not detected at or above the laboratory reporting limit (value indicates reporting limit)
USCS	Unified Soils Classification System
VC	vinyl chloride
VC R-Dase	vinyl chloride reductase
VOC	volatile organic compound
WATS	West-Side Aquifers Treatment System

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## EXECUTIVE SUMMARY

The objective of this study was to determine if historic dry cleaning activities from former Building 88 has resulted in a residual source of tetrachloroethene (PCE) contamination to groundwater, and if present, to characterize the nature and extent of such contamination. Building 88 was located at the former Naval Air Station Moffett Field (Moffett), Moffett Field, California, and served as a dry cleaning and laundry facility from approximately 1945 until its closure in 1987. The Navy conducted a removal action in 1994, which included the demolition of the building and the removal of associated tanks and sumps. The Navy began groundwater source control in 1994.

The investigation described in this document included a soil gas survey, soil core sampling, cone penetrometer testing, geologic logging, direct push technology groundwater and soil sampling, groundwater monitoring well installation and sampling, and collection of soil and groundwater samples for treatability studies. A continuing source of PCE contamination to groundwater was identified in the footprint of Building 88 and in a traffic island along a sewer alignment downstream from the building location.

### **PCE Contamination in the Building 88 Footprint Area**

The maximum PCE concentration in soil samples collected from the Building 88 area was in a sample collected beneath the building footprint (6,700 micrograms per kilogram [ $\mu\text{g/kg}$ ]), located in the area of Sump 66. PCE concentrations in soil greater than the U.S. Environmental Protection Agency Preliminary Remediation Goal for residential land use of 480  $\mu\text{g/kg}$  extend to a maximum depth of approximately 35 feet below ground surface (bgs). The calculated volume of soil with PCE concentrations greater than 480  $\mu\text{g/kg}$  within the footprint of Building 88 is 775 cubic yards (cu yd). The calculated mass of PCE in the soil with concentrations greater than 480  $\mu\text{g/kg}$  in the Building 88 area is 2.5 pounds. Shallow PCE contamination in soil in the Building 88 area does not extend laterally much farther than the building footprint. It appears that PCE-contaminated soil is contributing to groundwater PCE concentrations in the A aquifer at the Building 88 area.

PCE concentrations in groundwater beneath the Building 88 area range from less than the laboratory reporting limit of 0.5 micrograms per liter ( $\mu\text{g/L}$ ) to an estimated high of 2,100  $\mu\text{g/L}$ . PCE concentrations increase with depth to the north of the Building 88 footprint at depths greater than 30 feet bgs. PCE-contaminated groundwater moved vertically down (advectively with groundwater and/or as a dense non-aqueous phase liquid [DNAPL]) to about 20 to 30 feet bgs underlying the Building 88 footprint. In the 20- to 30-foot bgs depth interval, the PCE-contaminated groundwater moved advectively to the north and/or possibly down-dip as DNAPL. Contamination then found a vertical pathway and moved to the greatest depth investigated (60 feet bgs).



## **PCE Contamination in the Traffic Island Area**

Wastewater containing PCE from the Building 88 Sump 66 was discharged to a sewer line. There was a leak in the sewer line downstream from Building 88 in the traffic island area, resulting in PCE contamination of soils and groundwater. PCE concentrations in soil in the traffic island were greater than 480 µg/kg to a depth of about 65 to 70 feet bgs. The calculated volume of PCE-contaminated soil at concentrations greater than 480 µg/kg in the traffic island area is 12,400 cu yd. The calculated mass of PCE in the soil with concentrations greater than 480 µg/kg in the traffic island area is 32 pounds. It appears that PCE-contaminated soil is contributing to groundwater PCE concentrations in the A aquifer at the traffic island area.

Concentrations of PCE in groundwater beneath the traffic island area range from 2,000 to 15,000 µg/L within the A aquifer. It appears that PCE contamination moved vertically down to the depth of about 70 feet bgs in the traffic island. Based on the PCE concentrations measured in this investigation, the vertical movement of contamination in the traffic island was likely a combination of DNAPL and dissolved phase. Based on groundwater concentrations of PCE, DNAPL appears to be present at a depth of 17 to 19 feet bgs.

## **PCE Groundwater Contamination**

There are two PCE plume lobes within the upper portion of the A aquifer. The eastern lobe is a narrow linear feature (about 1,000 feet long and generally less than 50 feet wide) along Cummins Avenue. The eastern lobe, found in the shallowest portions of the upper A aquifer, appears to be controlled by the utility trench backfill along Cummins Avenue. The highest groundwater concentration of PCE within the eastern lobe (excluding the traffic island source area) was reported at an estimated concentration of 830 µg/L. The western PCE plume lobe within the upper portion of the A aquifer is approximately 2,000 feet long and from 150 to 250 feet wide. The plume has an elongated shape in a north-south direction, apparently controlled by the channelization characteristics of coarse-grained soil. The highest groundwater concentration of PCE within the western lobe (excluding the Building 88 source area) was reported at an estimated concentration of 150 µg/L. The amount of PCE in groundwater in the upper A aquifer is calculated to be 48 pounds.

The PCE groundwater plume in the lower A aquifer is approximately 1,600 feet long and ranges from 250 to 500 feet wide. The plume is located generally west of Hangar 1. The highest groundwater concentration of PCE within the lower portion of the A aquifer (not accounting for the PCE within the Building 88 or traffic island source areas) was at an estimated concentration of 530 µg/L. The amount of PCE in groundwater in the lower portion of the A aquifer is calculated to be 70 pounds.

There is de minimus PCE impacting the B2 aquifer. One B2 aquifer groundwater monitoring well had PCE concentrations above laboratory reporting limits in samples collected in December 2005. The 6 ug/L of PCE in the December 2005 groundwater sample collected from that well appear to be residual contamination caused by drag-down during well construction.

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## 1.0 INTRODUCTION

The Navy is conducting environmental restoration activities at the former Naval Air Station Moffett Field (Moffett), Moffett Field, California (Figures 1-1 and 1-2), as part of the Installation Restoration Program. This Report addresses the evaluation of source areas and remedial alternatives for a tetrachloroethene (PCE) groundwater plume apparently originating from the former Building 88 dry cleaning facility at Moffett. Implementation of the *Final West-Side Aquifers Treatment System [WATS] Optimization Work Plan Addendum 1* (Tetra Tech FW, Inc. [TiFW], 2005a) was conducted between April and May 2005.

This Report was prepared on behalf of the Navy's Base Realignment and Closure Program Management Office West. This work was conducted under Contract Task Order No. 0086, issued under Remedial Action Contract No. N68711-98-D-5713.

### 1.1 SITE DESCRIPTION

Building 88 was located south of Wescoat Road between Severyns Avenue and Dugan Avenue. The site is currently a vacant lot occupying approximately  $\frac{1}{2}$  acre (Figure 1-3 and Appendix A, Photograph A-1). Prior to its development in 1930, the surrounding area was used for agriculture. Building 88 served as a dry cleaning and laundry facility from approximately 1945 until its closure in 1987. Therefore, Building 88 is the only possible source of PCE (dry cleaning solvent) in the area.

The Building 88 footprint occupied approximately 13,500 square feet. Building 88 was constructed with a concrete floor, containing numerous floor drains, floor trenches (assumed to be concrete lined, but construction specifics could not be verified), and subsurface steel piping for wastewater collection (Figure 1-4). Floor drains and piping in the main portion of the building drained to Sump 91, a 700-gallon, single-chamber concrete sump used to collect and store wastewater. Floor drains and piping near the equipment room (northeast portion of the building) received and drained wastewater from the dry cleaning machine area to Sump 66, a 100-gallon concrete sump that was reportedly connected to the sanitary sewer. The equipment room had wastewater collection floor trenches ranging in depth from 1 to 2.5 feet, which drained to the south. Wastewater from dry cleaning operations may have drained to Tank 68 via the wastewater collection floor trenches. Tank 68 was located adjacent to the portion of the facility where the wastewater collection trench was deepest (approximately 2.5 feet below the concrete floor surface). Tank 68, a 2,000-gallon concrete tank, was reported to have stored or collected waste dry cleaning fluids. A 5-foot-deep pit and a steam pit may have been located in the northeast and southeast corners of the equipment room, respectively. Confirmation of these pits could not be validated, and record drawings could not be located.

Sump 66 was excavated and removed in 1990. Tank 68 was closed in place in 1990. Remedial activities completed in 1994 included the following:

- Tank 68 was excavated, emptied, and removed.
- Building 88, including the collection trenches, floor drains, and piping, was demolished and removed.
- Sump 91 was excavated and removed.
- Groundwater source control measures were installed,

## **1.2 PREVIOUS INVESTIGATIONS**

The following sections describe previous site investigations conducted at or near the former Building 88.

### **1.2.1 Soil Gas Surveys**

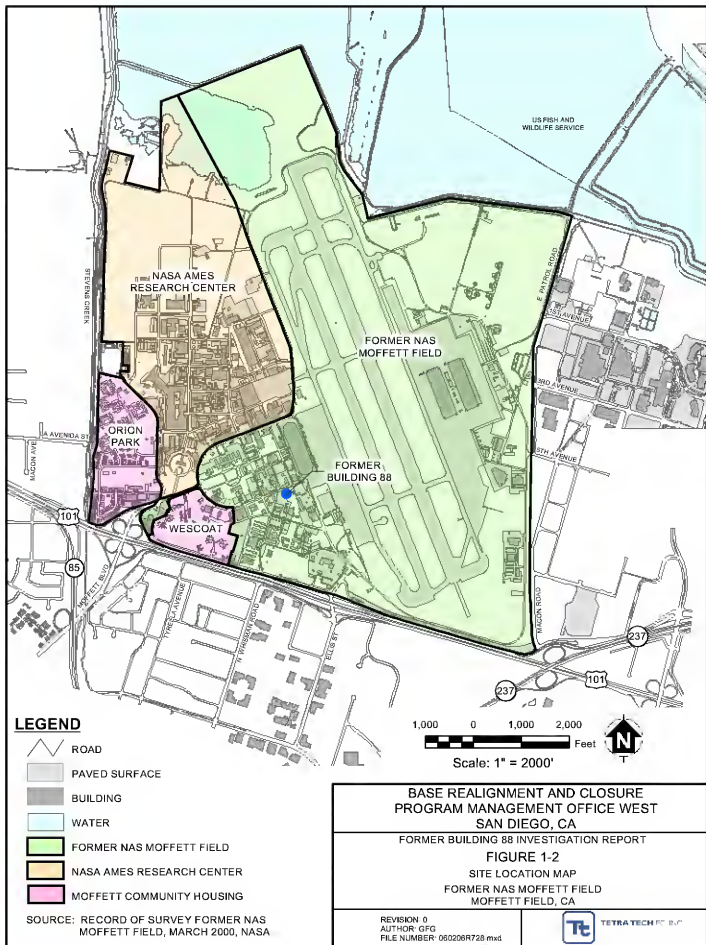
Soil gas surveys were conducted in the vicinity of Building 88 in 1988 and in 1990 (Harding Lawson Associates [HLA], 1995). Thirteen soil gas samples were collected and analyzed for PCE within 50 feet of the building. Sample locations and PCE concentrations are shown on Figure 1-5. The maximum PCE gas concentration of 312,000 parts per billion by volume (ppbv) was detected in a sample that was collected adjacent to the south side of the equipment room, near Tank 68. Soil gas samples were not collected within the Building 88 footprint.

Additional soil gas samples were collected in 1991 (HLA, 1995). The majority of the soil gas samples collected in 1991 were located approximately 800 to 1,200 feet north and east of Building 88. PCE was detected in soil gas at a maximum concentration of 248 ppbv in a sample collected from a location on Cummins Avenue, near a sanitary sewer line adjacent to Hangar 1. The sanitary sewer line reportedly served as a conduit for PCE-containing wastewater from Sump 66 (HLA, 1995).

### **1.2.2 Sump 66 Investigations**

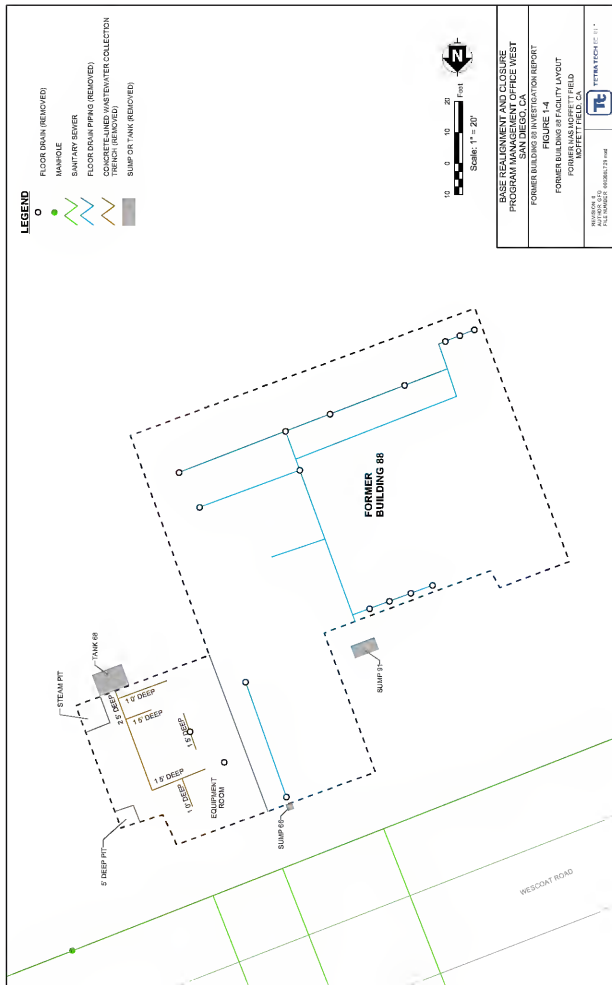
Sump 66, a 100-gallon concrete sump approximately 3 feet deep (actual sump dimensions do not appear to have been reported), received wastewater from floor drains and sinks near the dry cleaning equipment area of Building 88. Sump 66 reportedly drained to the sanitary sewer located on Wescoat Road. Sump 66 was inspected in November 1985 (PRC Environmental Management, Inc. [PRC], 1991). A sample of the liquid from the sump contained the following volatile organic compounds (VOCs): 63 milligrams per liter (mg/L) of dibromochloromethane, 55 mg/L of PCE, and trace amounts of ethylbenzene and xylene (less than 0.2 mg/L each). The sump liquids were resampled in March 1987 (PRC, 1991), with detected concentrations of PCE and trichloroethene (TCE) at 18 mg/L and 0.6 mg/L, respectively.









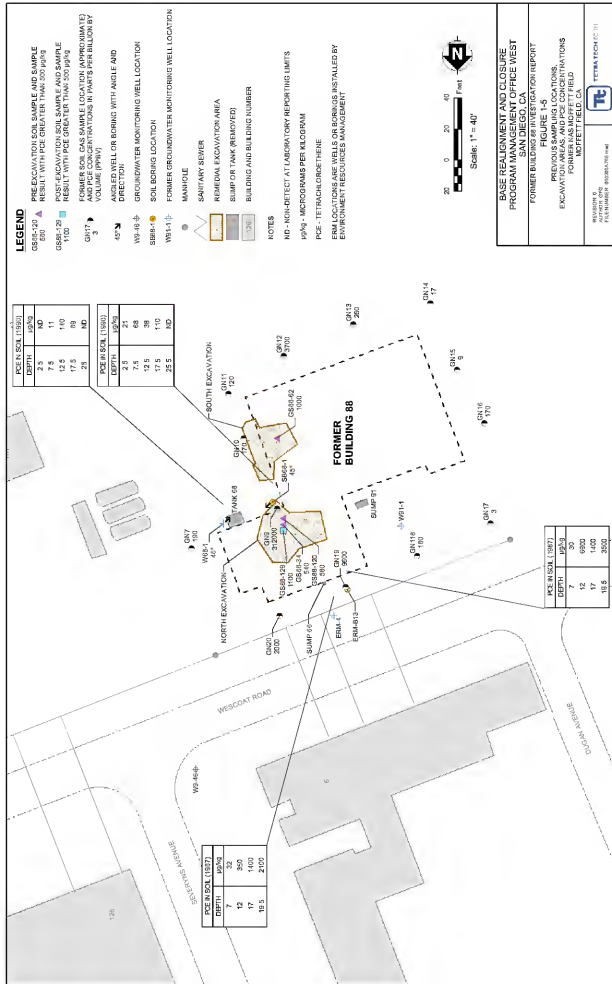


**BASE REALIGNMENT AND CLOSURE  
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FORMER BUILDING 88 INVESTIGATION REPORT

FORMER BUILDING 28 FACILITY LAYOUT  
FORMER NAS MOFFETT FIELD

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**BASE REALIGNMENT AND CLOSURE  
PROGRAM MANAGEMENT OFFICE WEST  
SAN DIEGO, CA**

**FORMER BUILDING 88 INVESTIGATION REPORT**

FIGURE 1-5  
PREVIOUS SAMPLING LOCATIONS,  
EXCAVATION AREAS, AND PCE CONCENTRATIONS  
FORMER NAS MORFETT FIELD  
MORFETT FIELD, CA

PROFFIT FIELD, CA

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Monitoring well ERM-4 and soil boring ERM-B13 located near Sump 66 (see Figure 1-5) were installed and sampled in 1987 (PRC, 1991). Soil samples were collected at depths of 7, 12, 17, and 19.5 feet below ground surface (bgs) at both locations. PCE was detected at a maximum concentration of 2,100 micrograms per kilogram ( $\mu\text{g}/\text{kg}$ ) at 19.5 feet bgs in a soil sample from the boring for monitoring well ERM-4, and 6,900  $\mu\text{g}/\text{kg}$  at 12 feet bgs in a soil sample from boring ERM-B13.

Sump 66 was inspected in 1990 and found to be cracked from the top to the bottom. The sump was excavated and removed. Groundwater was not encountered in the excavation. Three soil samples were collected from the excavation: one from the west wall, one from the north wall, and one from the excavation bottom. PCE was detected in the west wall soil sample at a concentration of 20  $\mu\text{g}/\text{kg}$ . PCE concentrations in the other two excavation soil samples were below laboratory reporting limits (PRC, 1991).

### **1.2.3 Tank 68 Investigations**

Tank 68, a 2,000-gallon concrete tank, was used to store PCE cleaning solvent. The tank was emptied of liquids, filled with sand, and closed in place in 1987 (PRC, 1995). Angled boring SB68-1 and angled monitoring well W68-1 were drilled to the west and east of Tank 68, respectively (see Figure 1-5), in September 1990. Soil samples were collected at depths of 2.5, 7.5, 12.5, 17.5, and 25 feet bgs at both locations. PCE was detected at a maximum concentration of 140  $\mu\text{g}/\text{kg}$  at 12.5 feet bgs in a soil sample from the boring for monitoring well W68-1 and 110  $\mu\text{g}/\text{kg}$  at 17.5 feet bgs in a soil sample from boring SB68-1.

Tank 68 was excavated and removed in 1994 (PRC, 1995). The tank, which appeared to be intact, was broken up and removed using a backhoe. The maximum excavation depth was approximately 9 feet bgs. Groundwater was not initially observed, but eventually accumulated in the bottom of the excavation. Three soil samples and one groundwater sample were collected from the excavation bottom. Reported PCE soil concentrations ranged from 8  $\mu\text{g}/\text{kg}$  to 130  $\mu\text{g}/\text{kg}$ . PCE was detected in the groundwater sample at a concentration of 200 micrograms per liter ( $\mu\text{g}/\text{L}$ ) (PRC, 1995).

### **1.2.4 Sump 91**

Sump 91, a 700-gallon concrete sump, received wastewater from the Building 88 floor drains and sinks. Sump 91 contained liquid that was sampled and then pumped out in 1991 (PRC, 1991). Analytical results for the Sump 91 liquid sample were not reported. The sump was excavated and removed in 1994. The sump was empty at the time of removal, and there were no signs of cracks or leaks. The maximum excavation depth was approximately 6 feet bgs. Four soil samples were collected by PRC from the excavation sidewalls and bottom to evaluate potential contamination. PCE was detected in one soil sample at an estimated concentration of 3  $\mu\text{g}/\text{kg}$ . PCE was not detected above laboratory reporting limits in the other three samples (PRC, 1995).

### 1.2.5 Unsaturated Zone Source Removal

Building 88 was demolished in 1994; the foundation, floor, floor drains, collection trenches, and subsurface piping were excavated and removed. One hundred and nineteen pre-excavation soil samples were collected at locations throughout the building footprint, including under the floor, drains, piping and trenches, and foundation (PRC, 1995). Soil samples beneath the floor were collected at depths of approximately 1.5 to 3 feet bgs. Soil samples beneath the drains, piping, and trenches were collected at 3 to 5 feet bgs. Soil samples beneath the foundation were collected at 4 to 6 feet bgs. PCE was detected at concentrations above the negotiated cleanup level (500 µg/kg) in three pre-excavation soil samples (see Figure I-5): 1,000 µg/kg detected in a pre-excavation soil sample adjacent to a floor drain, 580 and 540 µg/kg detected in pre-excavation soil samples in the southwest corner of the equipment room. PCE was not detected above laboratory reporting limits (approximately 12 µg/kg) in 69 pre-excavation soil samples. The remaining 47 pre-excavation soil samples had PCE concentrations between laboratory reporting limits and the cleanup level. The pre-excavation soil PCE concentrations varied over a relatively small distance. For example, PCE was detected at 21 µg/kg in a soil sample 2 feet southeast of and 2 feet shallower than the soil sample with the maximum PCE concentration of 1,000 µg/kg.

Approximately 400 cubic yards of soil were excavated from two areas where soil sample PCE concentrations exceeded the cleanup level of 500 µg/kg (see Figure I-5). Soil in these two areas was excavated to the water table, approximately 7 to 8 feet bgs. Seven post-excavation bottom-hole samples were collected from the two areas. PCE was detected at a concentration of 1,100 µg/kg in the post-excavation bottom-hole soil sample in the north area excavation. No additional excavation was accomplished due to encountering groundwater.

### 1.2.6 Saturated Zone Contaminant Removal

A groundwater source control measure was installed in 1994 to provide hydraulic control of potential residual saturated zone contamination from the former Building 88 (Tetra Tech EM, Inc. [TtEMI], 2001). The groundwater source control measure, referred to as the Building 6 Treatment System, was located north of the former Building 88 and installed in October 1994. The Building 6 Treatment System extracted and treated chlorinated solvent-contaminated groundwater using two granular activated carbon units in series from converted groundwater monitoring well W9-46 (see Figure I-5) (TtEMI, 2001). Based on a review of quarterly National Pollutant Discharge Elimination System reports, the Building 6 Treatment System extracted and treated approximately 800,000 gallons of groundwater. A total of 2.4 pounds of VOCs were removed by the Building 6 Treatment System. The system was shut down in 1997 because of the installation and operation of the WATS.

The WATS went on-line in November 1998 and remains in operation. The system includes six extraction wells screened in the upper portion of the A aquifer and three extraction wells screened in the lower portion of the A aquifer. These extraction wells, in conjunction with Middlefield-Ellis-Whisman (MEW) regional extraction wells, maintain hydraulic capture at the northern (leading) edge of the regional groundwater plume. Contamination that migrates from sources upgradient of the WATS area and residual on-site contaminant sources, including the former Building 88, is captured and treated. Upper A aquifer extraction well EA1-1 was constructed as a source control well to replace extraction well W9-46.

### **1.2.7 WATS Rebound Testing**

One of the objectives of the *Final West-Side Aquifers Treatment System Optimization Work Plan* (Foster Wheeler Environmental Corporation [FWENC], 2003) was to conduct rebound groundwater sampling at extraction well EA1-1 and the surrounding monitoring wells. Extraction well EA1-1 was temporarily turned off on April 12, 2004, for testing and turned back on December 3, 2004. The results of the rebound testing were interpreted to suggest a continuing source of PCE upgradient of EA1-1. Concentrations of PCE in groundwater samples from monitoring well W9-46 increased from approximately 100 µg/L (baseline concentration – extraction well operating) to over 200 µg/L (rebound concentration – approximately 6 months after the extraction well was turned off).

PCE concentrations from the 2004 annual sampling event for the WATS in the area of the former Building 88 were evaluated. The PCE concentrations in extraction wells are not used in the contouring process since they are not representative of the extraction well location, but rather of the area of groundwater captured by the extraction well. The results are summarized below.

#### **Upper A Aquifer – PCE Plume**

The PCE plume in the upper portion of the A aquifer is approximately 2,000 feet long and 150 feet wide (Figure 1-6). The highest concentration of PCE in the WATS area, within the upper A aquifer, was reported as 230 µg/L in a sample collected from groundwater monitoring well W9-46. Monitoring well W9-46 is located approximately 100 feet northeast of the Building 88 footprint.

#### **Lower A Aquifer – PCE Plume**

The PCE plume in the lower portion of the A aquifer is approximately 1,700 feet long and 300 feet wide. The plume is located west of Hangar 1 (Figure 1-7). The highest concentration of PCE in the WATS area, within the lower A aquifer, was reported at an estimated concentration of 410 µg/L in a sample collected from groundwater monitoring well W9-20. Monitoring well W9-20 is located approximately 250 feet west of Hangar 1.

### 1.3 WORK PLAN ADDENDUM OBJECTIVES

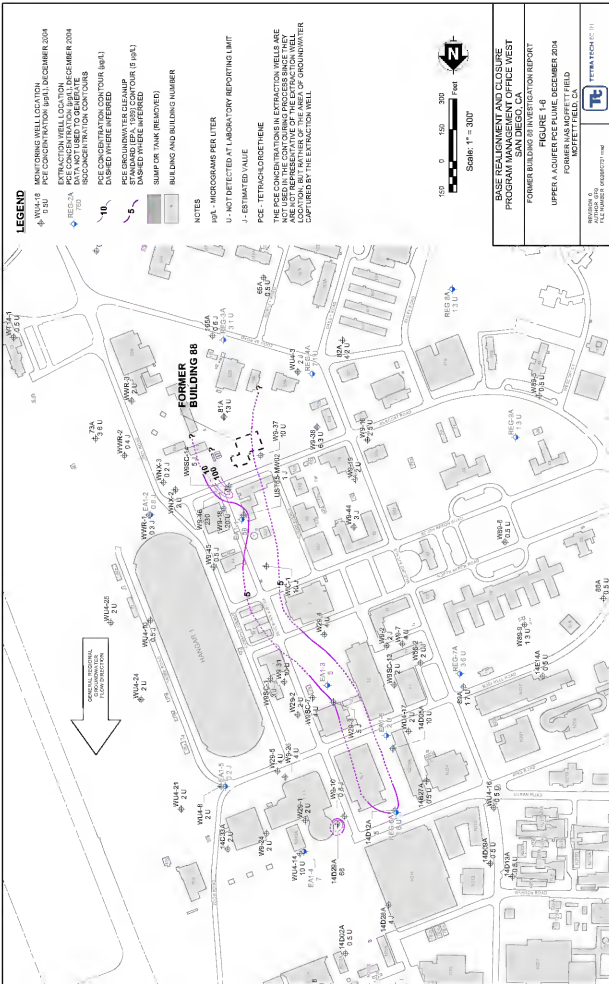
The objectives identified in the *Final West-Side Aquifers Treatment System Optimization Work Plan Addendum 1* (TtFW, 2005a) included the following:

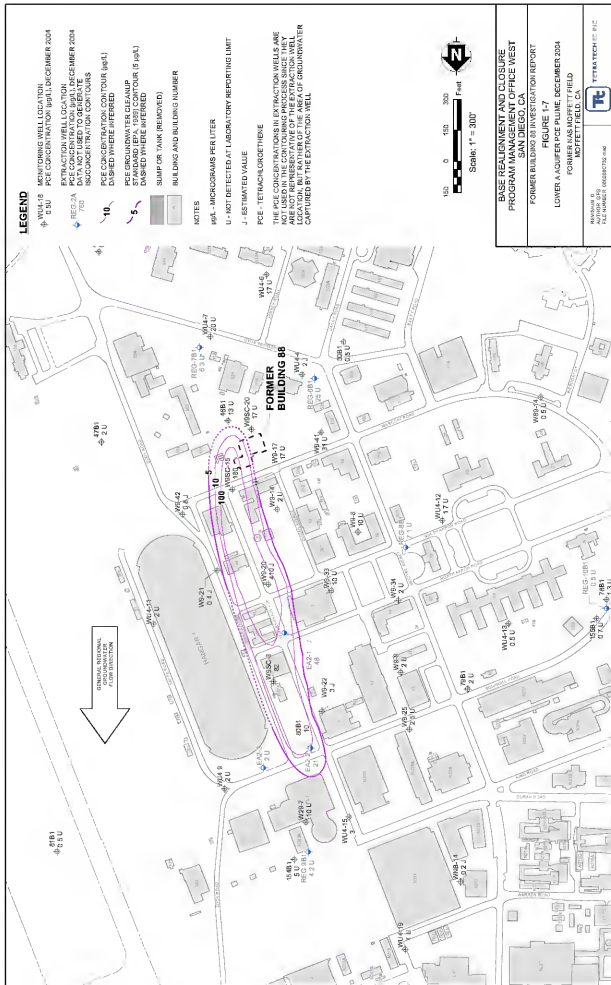
- Evaluate whether the residual vadose zone PCE is a continuing source of contamination for groundwater.
- Evaluate the extent of saturated soils with PCE concentrations that could be a source of groundwater contamination.
- Evaluate the delineation and understanding of the nature of the downgradient PCE groundwater plume.
- Evaluate PCE source area treatability, if appropriate.

### 1.4 REPORT ORGANIZATION

This Report is organized as follows:

- **Section 1.0** provides the former Building 88 site description, a summary of previous investigations, Work Plan Addendum objectives, and Report organization.
- **Section 2.0** presents the soil gas survey objectives, field activities, and results.
- **Section 3.0** presents the continuous core drilling objectives, field activities, and results.
- **Section 4.0** presents the cone penetrometer and direct push testing objectives, field activities, and results.
- **Section 5.0** presents the groundwater monitoring well drilling, construction, and completion.
- **Section 6.0** presents the groundwater sampling objectives, field activities, and results.
- **Section 7.0** presents the results of the sample quality review.
- **Section 8.0** presents the geology and hydrogeology.
- **Section 9.0** presents source evaluation and contaminant fate and transport.
- **Section 10.0** presents the treatability study objectives and results.
- **Section 11.0** presents conclusions.
- **Section 12.0** includes a list of references.
- **Tables, Figures, and Plates** are included with the text.
- **Appendix A** includes project photographs.
- **Appendix B** includes the analytical result reports and chain-of-custody documentation on compact disk.
- **Appendix C** contains survey data.







- **Appendix D** contains the continuous core permits and lithologic logs, the monitoring well boring and construction logs, and monitoring well development logs.
- **Appendix E** contains the cone penetrometer testing permits and logs.
- **Appendix F** includes low-flow groundwater sampling data sheets.
- **Appendix G** includes a detailed quality assurance/quality control report.
- **Appendix H** includes the ISOTEC laboratory treatability study report.
- **Appendix I** includes the Microbial Insights treatability study report.

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## 2.0 SOIL GAS SURVEY

This section provides a summary of the objective, activities, and results of the soil gas survey.

### 2.1 SOIL GAS SURVEY OBJECTIVE

The objective of the soil gas survey was to identify areas where tetrachloroethene (PCE) was present in the subsurface, as specified in Data Quality Objective Decision Question No. 1 in the Sampling and Analysis Plan to the *Final West-Side Aquifers Treatment System Optimization Work Plan Addendum 1* (Tetra Tech FW, Inc. [TtFW], 2005a): Is PCE detected above action levels for samples collected in the vadose zone, which would indicate a potential source area? Results of the soil gas survey were used to direct the subsequent investigation. Specific targets were to:

- Evaluate the potential presence of source areas beneath the Building 88 footprint.
- Evaluate the potential presence of source areas along the downstream sanitary sewer alignment piping.

### 2.2 SOIL GAS SURVEY ACTIVITIES

The activities associated with conducting the soil gas survey were the following:

- Geophysical survey for underground utilities
- Installation of soil gas sampling probes
- Soil gas sampling and analysis for PCE, trichloroethene (TCE), cis-1,2-dichloroethene (cis-1,2-DCE), and vinyl chloride (VC)
- Soil gas sample probe removal, site restoration, and sample location survey

The soil gas survey was completed in accordance with the *Final West-Side Aquifers Treatment System Optimization Work Plan Addendum 1* (TtFW, 2005a). Initial soil gas survey locations were based on previous soil gas survey detections of PCE, reported residual PCE after Building 88 demolition and groundwater detections of PCE. Fifty soil gas probes were installed: 38 as originally proposed and 12 as step-outs at locations where PCE soil gas was detected at concentrations above 500 parts per billion by volume (ppbv). The value of 500 ppbv was chosen because it is half the average of the historical PCE soil gas concentrations. Soil gas probe locations and the survey results (described in Section 2.3) are shown on Figures 2-1 and 2-2. Soil gas probe installation and sampling activity photographs were provided in Appendix A.

### **2.2.1 Soil Gas Probe Installation**

Soil gas probes were installed between April 4 and April 7, 2005. Underground Service Alert was notified and a geophysical survey was performed at each proposed soil gas probe location before installation. A nominal 2-inch-diameter hand-auger was used to advance 50 borings to 5 feet below ground surface (bgs). Soil gas probes were installed in each boring. The soil gas probes consisted of a 1.4-inch-long, 0.35-inch outside diameter porous probe tip, connected to 0.25-inch-diameter Teflon<sup>®</sup> tubing, using a barbed pressure fitting (see Appendix A, Photograph A-3). The top of the tubing was connected with a barbed pressure fitting to a threaded cap to seal the probe from the atmosphere.

Approximately 1 inch of filter sand was placed in the bottom of the boring. The probe tip and tube assembly were lowered to the bottom of the boring, with the probe tip resting on the filter sand. Five additional inches of filter sand were placed in the annular space across and above the probe tip (see Appendix A, Photograph A-4). Coarse granular bentonite was placed above the filter sand to land surface and then hydrated with potable water. The bentonite surface seal was visually inspected to ensure that the probe had been sealed from the atmosphere (see Appendix A, Photograph A-5).

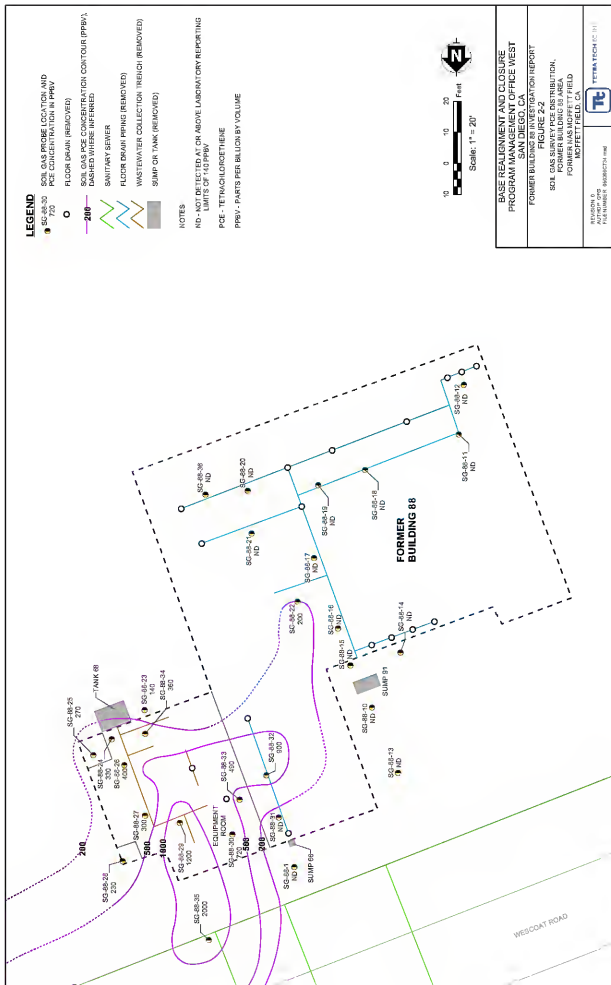
Twenty-seven soil gas probes were installed within, or immediately adjacent to the Building 88 footprint (see Figure 2-2). Soil gas probes were installed along the former floor drains, drain lines, trenches, pits, sumps, and tank to evaluate the potential presence of PCE source areas beneath the Building 88 footprint. Eight soil gas probes were installed along the sewer alignment downgradient of Sump 66, as originally planned. Thirteen soil gas probes were installed as step-outs from the original eight locations along the sewer alignment (see Figure 2-1). Two soil gas probes were installed north of National Aeronautics and Space Administration (NASA) Building N210, as originally planned (see Figure 2-1). The two soil gas probe locations downgradient of NASA Building N210 were selected due to the observed increase in PCE concentration in samples collected from the upper A aquifer groundwater monitoring wells 14D29A and 14D12A.

Forty-seven soil gas probes were successfully installed and sampled (see Figures 2-1 and 2-2). Three soil gas probes (SG-88-W1, SG-88-W2, and SG-88-W3), located along the sewer line and a storm drain, produced water during purging and were not sampled (see Figure 2-1).

### **2.2.2 Soil Gas Probe Sampling**

Soil gas probes were sampled approximately 24 hours after installation. A 60-cubic centimeter (cc) syringe with a stop-cock valve on the intake was threaded to the cap on the end of the soil gas probe tubing for a gas-tight seal (see Appendix A, Photograph A-6). A purge volume test was conducted at the first sampling location, SG-88-1. The purge test was conducted in accordance with California Department of Toxic Substances Control protocol (California





Environmental Protection Agency, Department of Toxic Substances Control and California Regional Water Quality Control Board, 2003). The purge test consisted of collecting samples after purging one probe tip and tubing volume (approximately 30 ccs), three tube and tip volumes, and seven tube and tip volumes. The highest gas concentration of a volatile organic compound (VOC), which happened to be TCE, was detected in the gas sample collected after purging seven probe tip and tubing volumes. Therefore, all subsequent soil gas probes were purged of seven probe tip and tubing volumes prior to sampling.

Prior to sampling, the soil gas probe was purged by withdrawing seven tip and tubing volumes with a 60-cc syringe. The syringe was evacuated to the atmosphere during purging. During purging and sampling, the syringe plunger was withdrawn at a constant rate in an effort to withdraw soil gas at a flow rate less than 200 milliliters (mL) per minute (see Appendix A, Photograph A-6). The syringe was used to collect the gas sample after purging. The stop-cock was shut and the soil gas syringe was immediately transferred to an on-site mobile laboratory for analysis after collecting the soil gas sample.

Prior to sampling, 1,1-difluoroethane was introduced at the junction of the tubing and the bentonite seal as a tracer compound for the purpose of leak testing. The tracer compound was included in the VOC analysis to determine if there was a leak in the annular seal. The tracer compound was not detected in any of the sample results (see soil gas sample report narrative in Appendix B), indicating that all of the soil gas samples were representative of subsurface soil gas.

### **2.2.3 Soil Gas Probe Removal**

The soil gas probe tubes were pulled out of the ground once all soil gas probes had been sampled. Additional coarse granular bentonite was added to the resulting hole and hydrated. In paved areas, the bentonite was removed to the base of the pavement, then backfilled with concrete to match the existing grade. Horizontal and vertical coordinates for the soil gas probes were surveyed. Survey data for the soil gas probes are provided in Appendix C.

## **2.3 SOIL GAS SURVEY RESULTS**

Potential PCE source areas were identified along the sewer alignment (along Cummins Avenue between S. Akron Road and Wescoat Road, and along Wescoat Road to the east of Sump 66) and in the footprint of the equipment room within the Building 88 footprint. Soil gas sample results were shown on Figures 2-1 and 2-2 and are summarized in Table 2-1. The Building 88 area overlies the regional TCE plume, and thus, although reported, TCE, cis-1,2-DCE, and VC gas concentrations were not used to evaluate potential source areas. The highest soil gas PCE concentrations were detected in samples collected along the sewer alignment, downstream of the former Building 88, suggesting that PCE entered the subsurface through leaks in the sewer line.

Soil gas PCE concentrations reported for samples collected within the Building 88 footprint ranged from below the laboratory reporting limit of 140 ppbv to 1,200 ppbv (see Figure 2-2). PCE soil gas concentrations were below laboratory reporting limits in samples from 11 out of 12 soil gas probes (SG-88-11, SG-88-12, SG-88-14 through SG-88-21, and SG-88-36) located near the former floor drains and drain lines that discharged to Sump 91. Soil gas PCE concentrations were below the laboratory reporting limit in the samples collected from SG-88-10 and SG-88-15 located to the north and south of Sump 91, respectively. Soil gas PCE concentrations were at or above the laboratory reporting limit in samples from 11 of 13 probes located in the former equipment room and near the floor drains that discharged to Sump 66 (see Figure 2-2). However, the soil gas PCE concentrations were below the laboratory reporting limit for the samples collected from soil gas probes SG-88-1 and SG-88-31, north and south of the Sump 66 location, respectively.

Soil gas PCE concentrations in samples collected along the sewer alignment ranged from below the laboratory reporting limit of 140 ppbv to 11,000 ppbv (see Figure 2-1). Eight soil gas probes (SG-88-2 through SG-88-7, SG-88-35, and SG-88-W1) were installed directly above the sewer line. Soil gas PCE was detected at concentrations greater than 500 ppbv in samples collected from all soil gas probes along the sewer alignment downstream of Sump 66 (to the east along Wescoat Road and then to the north along Cummins Avenue) until about S. Akron Road. All soil gas PCE concentrations in samples collected from probes along Cummins Avenue to the north of S. Akron Road (SG-88-44, SG-88-6, and SG-88-7) were less than the laboratory reporting limit. Reported soil gas PCE concentrations along the sewer alignment were highest in samples collected from probes along Cummins Avenue from Wescoat Road north to just east of Building 64. PCE was detected in soil gas samples collected at SG-88-2 through SG-88-5 at 750 ppbv, 900 ppbv, 11,000 ppbv, and 1,300 ppbv, respectively.

Additional soil gas probe locations (step-outs) were installed and sampled to further characterize locations along the sanitary sewer where PCE concentrations were greater than 500 ppbv (see Figure 2-1) in accordance with the *Final West-Side Aquifers Treatment System Optimization Work Plan Addendum 1* (TtFW, 2005a):

- Soil gas probes SG-88-37, SG-88-39, SG-88-40, and SG-88-41 were installed as step-outs to soil gas probe SG-88-2.
- Soil gas probes SG-88-42 and SG-88-W2 were installed as step-outs to SG-88-3.
- Soil gas probes SG-88-43, SG-88-W2, and SG-88-W3 were the step-outs for SG-88-4.
- Soil gas probes SG-88-38, SG-88-43, and SG-88-44 were installed as step-outs to SG-88-5.
- Soil gas probe SG-88-47 was the step-out for SG-88-38.



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TABLE 2-1

**SOIL GAS SURVEY RESULTS  
FORMER NAS MOFFETT FIELD  
MOFFETT FIELD, CA**

Sample Number	86-WOPT-200A	86-WOPT-200B	86-WOPT-200C	86-WOPT-218	86-WOPT-219 (FD)	86-WOPT-201
Sample Location	SG-88-1	SG-88-1	SG-88-1	SG-88-1	SG-88-1	SG-88-2
Sample Date	4/5/2005	4/5/2005	4/5/2005	4/6/2005	4/6/2005	4/5/2005
Sample Depth (feet bgs)	4.5-5	4.5-5	4.5-5	4.5-5	4.5-5	4.5-5
Analyte (EPA Method 8260B) (ppbv)						
CIS-1,2-DICHLOROETHENE	250 U	420	400	420	400	4700
TETRACHLOROETHENE	140 U	140 U	140 U	140 U	140 U	750
TRICHLOROETHENE	180 U	1300	1600	1700	1700	6200
VINYL CHLORIDE	390 U	390 U	390 U	390 U	390 U	390 U

Sample Number	86-WOPT-202	86-WOPT-203	86-WOPT-204	86-WOPT-205	86-WOPT-206	86-WOPT-207
Sample Location	SG-88-3	SG-88-4	SG-88-5	SG-88-6	SG-88-7	SG-88-8
Sample Date	4/5/2005	4/5/2005	4/5/2005	4/5/2005	4/5/2005	4/5/2005
Sample Depth (feet bgs)	4.5-5	4.5-5	4.5-5	4.5-5	4.5-5	4.5-5
Analyte (EPA Method 8260B) (ppbv)						
CIS-1,2-DICHLOROETHENE	5900	1300	1100	250 U	250 U	250 U
TETRACHLOROETHENE	900	11000	1300	140 U	140 U	140 U
TRICHLOROETHENE	1100	1500	1100	180 U	480	380
VINYL CHLORIDE	390 U	390 U	390 U	390 U	390 U	390 U

Sample Number	86-WOPT-208	86-WOPT-209	86-WOPT-210	86-WOPT-211	86-WOPT-212	86-WOPT-210 (FD)
Sample Location	SG-88-9	SG-88-10	SG-88-11	SG-88-12	SG-88-13	SG-88-13
Sample Date	4/5/2005	4/5/2005	4/5/2005	4/5/2005	4/5/2005	4/6/2005
Sample Depth (feet bgs)	4.5-5	4.5-5	4.5-5	4.5-5	4.5-5	4.5-5
Analyte (EPA Method 8260B) (ppbv)						
CIS-1,2-DICHLOROETHENE	250	250 U	960	890	370	400
TETRACHLOROETHENE	140 U	140 U	140 U	140 U	140 U	140 U
TRICHLOROETHENE	550	530	7700	5500	1800	2600
VINYL CHLORIDE	390 U	390 U	390 U	390 U	390 U	390 U

Sample Number	86-WOPT-213	86-WOPT-214	86-WOPT-215	86-WOPT-216	86-WOPT-217	86-WOPT-221
Sample Location	SG-88-14	SG-88-15	SG-88-16	SG-88-17	SG-88-18	SG-88-19
Sample Date	4/5/2005	4/5/2005	4/5/2005	4/5/2005	4/5/2005	4/6/2005
Sample Depth (feet bgs)	4.5-5	4.5-5	4.5-5	4.5-5	4.5-5	4.5-5
Analyte (EPA Method 8260B) (ppbv)						
CIS-1,2-DICHLOROETHENE	250 U	250	740	620	690	570
TETRACHLOROETHENE	140 U	140 U	140 U	140 U	140 U	140 U
TRICHLOROETHENE	440	1100	3700	1800	3100	1800
VINYL CHLORIDE	390 U	390 U	390 U	390 U	390 U	390 U

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TABLE 2-1

**SOIL GAS SURVEY RESULTS  
FORMER NAS MOFFETT FIELD  
MOFFETT FIELD, CA**

Sample Number	86-WOPT-222	86-WOPT-223	86-WOPT-224	86-WOPT-225	86-WOPT-226	86-WOPT-227
Sample Location	SG-88-20	SG-88-21	SG-88-22	SG-88-23	SG-88-24	SG-88-25
Sample Date	4/6/2005	4/6/2005	4/6/2005	4/6/2005	4/6/2005	4/6/2005
Sample Depth (feet bgs)	4.5-5	4.5-5	4.5-5	4.5-5	4.5-5	4.5-5
Analyte (EPA Method 8260B) (ppbv)						
CIS-1,2-DICHLOROETHENE	640	740	1000	690	1100	490
TETRACHLOROETHENE	140 U	140 U	200	140	330	270
TRICHLOROETHENE	1700	2000	2600	880	950	400
VINYL CHLORIDE	390 U	390 U	390 U	390 U	390 U	390 U

Sample Number	86-WOPT-228	86-WOPT-229	86-WOPT-230	86-WOPT-231	86-WOPT-232	86-WOPT-233
Sample Location	SG-88-26	SG-88-27	SG-88-28	SG-88-29	SG-88-30	SG-88-31
Sample Date	4/6/2005	4/6/2005	4/6/2005	4/6/2005	4/6/2005	4/6/2005
Sample Depth (feet bgs)	4.5-5	4.5-5	4.5-5	4.5-5	4.5-5	4.5-5
Analyte (EPA Method 8260B) (ppbv)						
CIS-1,2-DICHLOROETHENE	1000	1800	490	1500	1200	940
TETRACHLOROETHENE	400	300	230	1200	720	140 U
TRICHLOROETHENE	1300	2600	1100	2400	4900	4200
VINYL CHLORIDE	390 U	390 U	390 U	390 U	390 U	390 U

Sample Number	86-WOPT-234	86-WOPT-235	86-WOPT-236	86-WOPT-237	86-WOPT-238	86-WOPT-239
Sample Location	SG-88-32	SG-88-33	SG-88-34	SG-88-35	SG-88-36	SG-88-37
Sample Date	4/6/2005	4/6/2005	4/6/2005	4/6/2005	4/6/2005	4/6/2005
Sample Depth (feet bgs)	4.5-5	4.5-5	4.5-5	4.5-5	4.5-5	4.5-5
Analyte (EPA Method 8260B) (ppbv)						
CIS-1,2-DICHLOROETHENE	1500	1300	1900	1900	590	3200
TETRACHLOROETHENE	900	490	360	2000	140 U	720
TRICHLOROETHENE	9900	4200	2600	4200	440	3800
VINYL CHLORIDE	390 U	390 U	390 U	390 U	390 U	390 U

Sample Number	86-WOPT-240 (FD)	86-WOPT-241	86-WOPT-242	86-WOPT-243	86-WOPT-244	86-WOPT-245
Sample Location	SG-88-37	SG-88-38	SG-88-39	SG-88-40	SG-88-41	SG-88-42
Sample Date	4/6/2005	4/6/2005	4/6/2005	4/6/2005	4/7/2005	4/7/2005
Sample Depth (feet bgs)	4.5-5	4.5-5	4.5-5	4.5-5	4.5-5	4.5-5
Analyte (EPA Method 8260B) (ppbv)						
CIS-1,2-DICHLOROETHENE	3700	940	2400	2100	6400	6400
TETRACHLOROETHENE	810	1000	670	140 U	610	5900
TRICHLOROETHENE	4400	1100	2900	3100	1300	2700
VINYL CHLORIDE	390 U	390 U	390 U	390 U	390 U	390 U

## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 2-1

**SOIL GAS SURVEY RESULTS  
FORMER NAS MOFFETT FIELD  
MOFFETT FIELD, CA**

Sample Number	86-WOPT-246	86-WOPT-247	86-WOPT-248 (FO)	86-WOPT-249	86-WOPT-250	86-WOPT-251
Sample Location	SG-88-43	SG-88-44	SG-88-44	SG-88-45	SG-88-46	SG-88-47
Sample Date	4/7/2005	4/7/2005	4/7/2005	4/7/2005	4/7/2005	4/7/2005
Sample Depth (feet bgs)	4.5-5	4.5-5	4.5-5	4.5-5	4.5-5	4.5-5
Analyte (EPA Method 8260B) (in ppbv)						
CIS-1,2-DICHLOROETHENE	<b>540</b>	250 U	250 U	<b>670</b>	250 U	250 U
TETRACHLOROETHENE	<b>1200</b>	140 U	140 U	140 U	140 U	140 U
TRICHLOROETHENE	<b>700</b>	180 U	180 U	<b>2400</b>	<b>970</b>	180 U
VINYL CHLORIDE	390 U	390 U	390 U	390 U	390 U	390 U

**Note**

Bold - indicates value above method detection limit

**Abbreviations and Acronyms:**

bgs - below ground surface

CA - California

EPA - U.S. Environmental Protection Agency

FO - field duplicate

NAS - Naval Air Station

ppbv - parts per billion by volume

U - not detected at or above the laboratory reporting limit (value indicates the reporting limit)

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- Soil gas probes SG-88-45 and SG-88-46 were installed as step-outs for SG-88-W3 (These step-outs were constructed since SG-88-W3 could not be sampled [see below]).

Three soil gas probes could not be sampled due to the presence of water: SG-88-W1, SG-88-W2, and SG-88-W3. A storm drain was located adjacent to each soil gas probe location where water was detected. The water detected in the soil gas probes appears to have been stormwater infiltrating into the storm drain trench backfill material and not groundwater, since step-out soil gas probes did not contain water.

Soil gas PCE concentrations were not detected above laboratory reporting limits in the two gas samples collected to the north of NASA Building N210 (SG-88-8 and SG-88-9).

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### 3.0 CONTINUOUS CORE DRILLING

This section provides a summary of the objectives, activities, and results of activities associated with continuous core drilling.

#### 3.1 CONTINUOUS CORE DRILLING OBJECTIVES

Objectives of continuous core drilling were to provide lithologic logs for correlation with the subsequent cone penetrometer testing (CPT) logs (see Section 4.0), and to identify sampling intervals for the collection of data necessary to answer Data Quality Objective Decision Question No. 2 in the Sampling and Analysis Plan to the *Final West-Side Aquifers Treatment System Optimization Work Plan Addendum 1* (Tetra Tech FW, Inc. [TtFW], 2005a): Is tetrachloroethene (PCE) detected above action levels for samples collected in the saturated zone, which would indicate a potential source area? Specifically, the objectives were to:

- Prepare lithologic logs from continuous core.
- Screen core for PCE and volatile organic compounds (VOCs).
- Collect soil samples for laboratory analysis based on field screening results.
- Compare lithologic logs to laboratory grain-size distributions.
- Identify lithologic layers for subsequent direct push technology (DPT) soils and groundwater sampling.

#### 3.2 CONTINUOUS CORE DRILLING FIELD ACTIVITIES

The activities associated with conducting continuous core drilling were the following:

- Geophysical survey for underground utilities
- Drilling (using a hollow-stem auger rig) to collect a continuous core
- Logging the core by a field geologist
- Field screening the core for PCE (using compound-specific Draeger® tubes) and total VOCs (using a photoionization detector [PID])
- Sampling select intervals for VOCs, total organic carbon (TOC), grain-size, and treatability testing
- Boring backfilling, site restoration, and surveying

Five continuous core borings were completed in accordance with the *Final West-Side Aquifers Treatment System Optimization Work Plan Addendum 1* (TtFW, 2005a). Continuous core boring locations are shown on Figures 3-1 and 3-2. Continuous core boring CC-88-1 was located approximately 500 feet north (hydrologically downgradient) of the former Building 88 (see Figure 3-1). CC-88-1 was randomly located to be outside a potential source area. Continuous

core borings CC-88-2 through CC-88-5 were located near the Sump 66 excavation, the northern remedial excavation, the Tank 68 excavation, and the southern remedial excavation, respectively (see Figure 3-2). Continuous core boring locations CC-88-2 through CC-88-5 were selected to investigate potential PCE source areas. A continuous core boring was not located at the Sump 91 excavation due to lack of PCE detections in soil gas samples collected upgradient and downgradient of the sump site (see Section 2.3). Soil coring and sampling activity photographs were included in Appendix A.

### 3.2.1 Core Collection

Continuous core borings were drilled between April 6 and April 8, 2005. Underground Service Alert was notified, a geophysical survey performed, and each location was cleared by hand-augering to 5 feet below ground surface (bgs). Continuous core borings were advanced to 59 feet bgs using a hollow-stem auger drill rig equipped with nominal 8¼-inch outside diameter hollow-stem augers (see Appendix A, Photograph A-7). Soil cores were collected using either a 5-foot-long, nominal 4-inch-diameter, or a 2½-foot-long, nominal 2-inch-diameter, split-barrel sampler. The core barrels were attached to 5-foot-long drill rods and lowered into the boring so that the core barrel tip extended in front of the auger bit. The core barrel was advanced ahead of the augers as the augers were advanced. The core barrel was retrieved when a distance equal to the length of the core barrel was drilled.

Not all soil cores were completely recovered. Soil core recovery ranged from 57 percent to 78 percent. Core loss appeared random, occurring in both fine- and coarse-grained lithology, shallow or at depth, using the 5-foot-long or 2½-foot-long sampler, and with or without a sand catcher. Heaving sands (a fine-grained sand/groundwater mixture that enters the augers due to reduced pressure within the augers) created difficulties in the collection of soil core at some locations. Water was added to the augers to assist holding back heaving sands with mixed success.

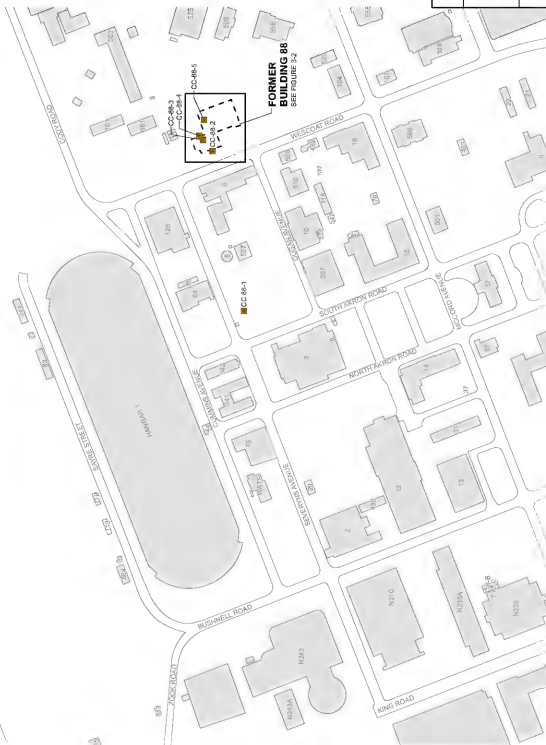
### 3.2.2 Lithologic Logging

Soil cores were logged in the field by a California Professional Geologist in accordance with the Unified Soils Classification System (USCS), as described in *Visual Classification of Soil* (Bureau of Reclamation, 1986), and the *2000 Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)* (American Society for Testing and Materials [ASTM] D2488-00), using a Munsell soil chart (1990 revised edition) for color designation. The logs are included in Appendix D. Twelve samples were collected from the soil cores for geotechnical laboratory grain-size distribution analysis. Five coarse-grained (primarily sandy soil) and seven fine-grained (primarily silty and clayey soil) soil samples were selected and analyzed by a geotechnical laboratory using ASTM D6913-04 and D422-63, respectively. Coarse-grained soil samples were selected from the following borings and depths:



# LEGEND

CONTINUOUS CORE LOCATION  
BUILDING AND BUILDING NUMBER



BASE RELIQUENT AND CLOSURE  
PROGRAM MANAGEMENT OFFICE WEST  
SAN DIEGO, CA

FORMER BUILDING 88 INVESTIGATION REPORT

FIGURE 2-1

CONTINUOUS CORE SAMPLE LOCATIONS  
FORMER BUILDING 88  
PROPERTY FIELD

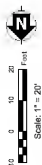
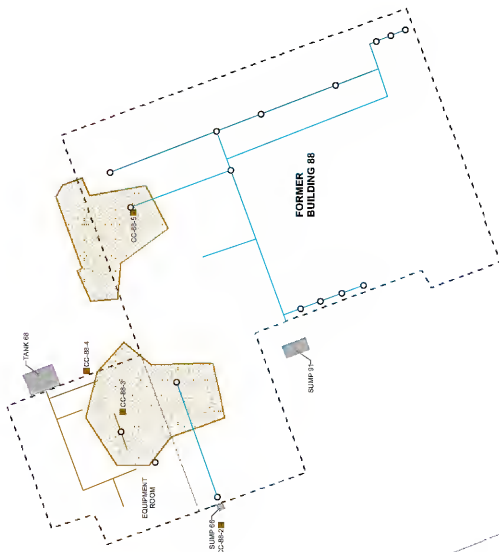
SCALE: 1" = 200'  
N  
100 0 100 200 Feet  
Scale: 1" = 200'



PROJECT: 1  
PROPERTY: 000  
FILE NUMBER: 00000000000000000000

# **LEGEND**

- CONTINUOUS CORE LOCATION
- FLOOR DRAIN (REMOVED)
- FLOOR DRAIN PIPING (REMOVED)
- WASTEWATER COLLECTION TRENCH (REMOVED)
- SUMP OR TANK (REMOVED)
- REMEDIAL EXCAVATION AREAS



BASE REMEDIATION AND CLOSURE  
PROGRAM MANAGEMENT OFFICE WEST  
FORMER BUILDING 88 INVESTIGATION REPORT

FIGURE 3-2  
CONTINUOUS CORE LOCATIONS,  
FORMER BUILDING 88 AREA  
MOFFETT FIELD, CA

DATE: 11/11/2011  
DRAWN BY: J. J. HARRIS  
CHECKED BY: J. J. HARRIS  
TETRA TECH, INC.



WESCOAT ROAD

- CC-88-1 at 15 to 15.5 feet bgs and 52 to 52.5 feet bgs
- CC-88-2 at 20 to 20.5 feet bgs
- CC-88-4 at 41.5 to 42 feet bgs
- CC-88-5 at 43.5 to 44 feet bgs

Fine-grained samples were selected from the following locations and depths:

- CC-88-1 at 9 to 9.5 feet bgs
- CC-88-2 at 12.5 to 13 feet bgs
- CC-88-3 at 7 to 7.5 feet bgs
- CC-88-4 at 6 to 6.5 feet bgs and 58 to 58.5 feet bgs
- CC-88-5 at 27.5 to 28 feet bgs and 51.5 to 52 feet bgs

Grain-size distribution results (provided in Appendix B) were used to correlate the field geologist's lithologic logs. Grain-size distribution results and lithologic logging correlation are described in Section 3.3.1.

### 3.2.3 Field Screening

Soil samples from each core were collected and screened in the field using PCE-specific Draeger<sup>®</sup> tubes and a PID. Soil samples were collected from both coarse- and fine-grained strata throughout the core. Soil sample selection focused on the base of coarse-grained units and the tops of the next lower fine-grained units to evaluate contamination distribution. Soil samples were placed in sealable plastic bags, filling about 1/3 of the bag, and placed on the dash of the pickup truck with the engine heater/defroster running to maintain the temperature at about 70 degrees Fahrenheit. After a minimum of 5 minutes, a corner of the sealable bag was opened and a PCE-specific Draeger<sup>®</sup> tube (range of zero to 1 parts per million [ppm]) inserted. Readings were recorded in the field logbook. After completing the Draeger<sup>®</sup> tube measurement, the PID tip was inserted into the same small opening of the sealable bag. PID readings were also recorded in the field logbook.

### 3.2.4 Soil Sampling

Sections of the soil core were collected for VOC analysis by an analytical laboratory using U.S. Environmental Protection Agency (EPA) Method 8260B and for TOC analysis using the Walkley-Black method (see Appendix A, Photograph A-8). Photograph A-8 shows the sampling procedures for the collection of soil samples for Walkley-Black analysis. Soil samples were collected at the same depths that field screening samples were collected. Select soil samples were analyzed for grain-size distribution, as described in Section 3.2.2. A bulk soil sample collected between 24 and 27.5 feet bgs in boring CC-88-3, consisting of fine to coarse sand with gravel,

was retained for a chemical oxidation laboratory treatability study. The Building 88 investigation was designed for characterization of soils and groundwater contamination, and treatability screening. Chemical oxidation was considered to have a low success potential because of known fine-grained layers within the A aquifer. Therefore, only one sample was collected for the chemical oxidation treatability study.

Soil samples were to be collected from the vadose zone source area (underlying the Building 88 footprint) representing low, medium, and high PCE concentrations to evaluate PCE leachability to the upper portion of the A aquifer. These samples were to address potential unsaturated zone source contribution to the upper portion of the A aquifer. However, due to findings of relatively high saturated zone soils concentrations of PCE in the upper portion of the A aquifer, a field decision was made not to collect and evaluate PCE leachability from unsaturated zone soil samples.

### **3.2.5 Core Boring Backfilling and Location Survey**

Each boring was backfilled with a Portland cement-bentonite grout mixture. The grout was pumped from the bottom of the boring using a tremie pipe in accordance with Santa Clara Valley Water District permit requirements. Boring permits were included in Appendix D. Soil core boring CC-88-1 was repaved to match the existing surface. The remaining soil core borings were completed with soil at land surface, as they were located in an unpaved vacant lot. Soil core boring horizontal and vertical coordinates were surveyed. Survey data for the soil core borings are included in Appendix C.

## **3.3 CONTINUOUS CORE DRILLING AND SAMPLING RESULTS**

Continuous core drilling and sampling activities were accomplished primarily to correlate the field geologist's lithologic logs and subsequent CPT logs, and to identify lithologic layers for subsequent DPT soil and groundwater sampling. Activity results are summarized below. The results of the bulk soil core sample collected for chemical oxidation treatability analysis are described in Section 10.0. Lithologic symbols provided in this section are based on the Unified Soil Classification System, as described in *Visual Classification of Soil* (Bureau of Reclamation, 1986) and the *2000 Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)* (ASTM D2488-00).

### 3.3.1 Lithologic Log Correlation

Twelve soil core samples were selected for grain-size distribution analysis (see Section 3.2.2). The grain-size distribution results were compared to the corresponding continuous soil core boring log descriptions for each depth-specific sample interval. The field geologist's continuous soil core boring log, based on the USCS visual analysis methods, were comparable with grain-size distribution analysis for all samples.

The lithologic logs for the continuous core borings (provided in Appendix D) are considered valid.

### 3.3.2 Sampling Interval Selection and Analytical Results

The intent of the PCE-specific Draeger<sup>®</sup> tube and PID field screening was to determine the lithologic intervals of PCE-contaminated soils (such as within the more permeable coarse-grained soils or the less permeable fine-grained soils). It was intended that these data would be used to select soil core intervals to be retained for laboratory analysis. Results of the laboratory analysis would then be used to identify lithologic intervals that would be sampled during subsequent DPT activities. As specified in Section 3.2.3, screening focused on the base of coarse-grained units and the tops of the next lower fine-grained units to evaluate PCE contamination distribution. However, there was no response in the PCE-specific Draeger<sup>®</sup> tube analysis for 28 of 35 screening attempts. Positive Draeger<sup>®</sup> tube responses, ranging from 0.5 to 1.0 ppm, were detected in seven samples. Therefore, field screening results using the Draeger<sup>®</sup> tube responses were not used for selecting soil core intervals to be retained for laboratory analysis.

PID screening readings of soil samples ranged from zero to 675 ppm. There was no apparent correlation between PID and Draeger<sup>®</sup> tube readings. The sample with the greatest PID reading (from boring CC-88-1 at 52 to 52.5 feet bgs, with 675 ppm) had a Draeger<sup>®</sup> tube reading of zero. Of the seven soil samples with positive Draeger<sup>®</sup> tube responses, six soil samples had PID readings of zero. It was suspected that the PID readings were measuring other VOCs (such as trichloroethene [TCE] in the regional plume). Therefore, field screening results using the PID readings were not used for selecting core intervals to be retained for laboratory sample analysis.

Because field screening appeared unsuccessful in providing the data needed to select samples for laboratory analysis, 33 out of 35 core intervals screened in the field were retained for VOC and TOC laboratory analysis. PCE analytical results are included in Table 3-1. VOC and TOC analytical results are included in Table 3-2. Laboratory analytical result evaluation confirmed no apparent correlation between field screening results and analytical results. Soil samples such as those collected from boring CC-88-3 at 14-14.5 feet bgs with a PCE concentration of 5,200

micrograms per kilogram ( $\mu\text{g/kg}$ ) (the greatest PCE concentration detected during continuous soil core sampling) had a corresponding Draeger<sup>®</sup> tube reading of zero ppm (see Table 3-1). The seven screening samples with positive Draeger<sup>®</sup> tube responses had corresponding analytical results ranging from non-detected at the laboratory reporting limit of 6  $\mu\text{g/kg}$ , to detected at an estimated concentration below the laboratory reporting limit.

Soil concentrations of PCE above the laboratory reporting limit of 6  $\mu\text{g/kg}$  were detected at four out of the five continuous soil core locations. PCE was not detected above estimated concentrations in any soil sample from boring CC-88-5, located in the southern remedial excavation area. Elevated soil PCE concentrations (greater than 480  $\mu\text{g/kg}$ ) were detected in four out of five depth intervals sampled between 12.5 and 26.5 feet bgs from boring CC-88-2, located about 4 feet north of Sump 66. The EPA Region 9 residential soils Preliminary Remediation Goal (PRG) of 480  $\mu\text{g/kg}$  for PCE was used for the site screening value for soils. The soils PRG's role in site screening was to help identify areas that may require further attention. The residential soils PRG for PCE is slightly lower than the cleanup level identified in the Middlefield-Ellis-Whisman Record of Decision (soil remediation standard for PCE of 100 times the corresponding groundwater value of 5 micrograms per liter [ $\mu\text{g/L}$ ] – 500 micrograms per kilogram [ $\mu\text{g/kg}$ ]). Elevated soil PCE concentrations were detected in four out of four depth intervals sampled between 9.5 and 19.5 feet bgs from boring CC-88-3, located in the northern remedial excavation area. PCE concentrations from boring CC-88-1, located hydraulically downgradient of the Building 88 footprint, ranged from an estimated value below the laboratory reporting limit of 6  $\mu\text{g/kg}$  to 35  $\mu\text{g/kg}$  at 9 to 9.5 feet bgs. Soil PCE concentrations from boring CC-88-4, located about 8 feet west of the Tank 68 excavation area, ranged from an estimated value below the laboratory reporting limit of 6  $\mu\text{g/kg}$  to 110  $\mu\text{g/kg}$  at 9.5 to 10 feet bgs.

The relationship between soil type (coarse-grained versus fine-grained) and PCE distribution is demonstrated in the soil sample results from boring CC-88-2, located near Sump 66 (see Table 3-1). Elevated concentrations of PCE were detected in both coarse- and fine-grained soil from this boring. However, the highest soil PCE concentrations were detected in coarser grained material (sand and silty sand). For example, at 12.5 to 13 feet bgs, PCE was detected in silt (ML) at 1,600  $\mu\text{g/kg}$ . In a silty sand (SM) layer below the silt (ML) at 18.5 to 19.5 feet bgs, PCE was detected at 2,300  $\mu\text{g/kg}$ . Immediately below the silty sand (SM) at 20.5 to 21 feet bgs, PCE was detected in silt (ML) at 52  $\mu\text{g/kg}$ . Similarly, at 25 to 25.5 feet bgs, PCE was detected in silt (ML) at 1,300  $\mu\text{g/kg}$ . One foot deeper at 26 to 26.5 feet bgs, PCE was detected in sand to silty sand (SW-SM) at 2,000  $\mu\text{g/kg}$ . Immediately below the sand (SW-SM) at 26.5 to 27 feet bgs, PCE was detected in clay (CL) at an estimated concentration below the laboratory reporting limit of 6  $\mu\text{g/kg}$ .

The following lithologic layers were selected as the focus of soil and groundwater DPT sampling based on the continuous core analytical results and site history:

## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 3-1

**CONTINUOUS SOIL CORE FIELD SCREENING RESULTS  
FORMER NAS MOFFETT FIELD  
MOFFETT FIELD, CA**

Sample Location	CC-88-1				
Sample Depth (feet bgs)	8-8.5	9-9.5	15-15.5	36-36.5	52-52.5
PID Reading (ppm)	3.2	2.6	3.5	6.0	675
Draeger <sup>®</sup> Tube Reading (PCE ppm) <sup>1</sup>	0	0	0	0	0
USCS Classification	SM	ML	SP	ML	SP
EPA 8260B (PCE µg/kg)	4.6 J	35	3.2 J	28	10

Sample Location	CC-88-2								
Sample Depth (feet bgs)	12.5-13.5	18.5-19	20.5-21	25.0-25.5	26-26.5	26.5-27	41-41.5	48-48.5	54-54.5
PID Reading (ppm)	0	0	10.4	3.2	7.1	1.7	1.2	4.8	7.8
Draeger <sup>®</sup> Tube Reading (PCE ppm) <sup>1</sup>	0	0	0	0	0	0	0	0	0
USCS Classification	ML	SM	ML	ML	SW-SM	CL	ML	ML	ML
EPA 8260B (PCE µg/kg)	1600	2300	52	1300	2000	4.6 J	15	6 U	23

Sample Location	CC-88-3							
Sample Depth (feet bgs)	7-7.5	9.5-10	10-10.5	14-14.5	19-19.5	27-27.5	36.5-37	41-41.5
PID Reading (ppm)	1.9	2.6	6.9	13.2	6.8	5.7	3.8	0.5
Draeger <sup>®</sup> Tube Reading (PCE ppm) <sup>1</sup>	0	0	0	0	0	0	0	0
USCS Classification	CL	ML	ML	SP	SP	SW	ML	SW
EPA 8260B (PCE µg/kg)	130	1200	2700	5200	2400	0.95 J	Not sampled	

Sample Location	CC-88-4					
Sample Depth (feet bgs)	9.5-10	30-30.5	36-36.5	41.5-42	49.5-50	58-58.5
PID Reading (ppm)	0	0	3.2	6.5	1.0	1.2
Draeger <sup>®</sup> Tube Reading (PCE ppm) <sup>1</sup>	0	0	0	0	1	0
USCS Classification	ML	ML	CL	SW	CL	ML
EPA 8260B (PCE µg/kg)	110	6 U	14	2.1 J	6 U	6 U

## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 3-1

**CONTINUOUS SOIL CORE FIELD SCREENING RESULTS  
FORMER NAS MOFFETT FIELD  
MOFFETT FIELD, CA**

Sample Location	CC-88-5						
Sample Depth (feet bgs)	25.5-26	26-26.5	38-38.5	41.5-42	48-48.5	50.5-51	58.5-59
PID Reading (ppm)	0	0	0	0	0	0	1.2
Draeger <sup>®</sup> Tube Reading (PCE ppm) <sup>1</sup>	<b>1</b>	<b>1</b>	<b>1</b>	<b>0.5</b>	<b>0.5</b>	<b>0.7</b>	<b>0</b>
USCS Classification	SW	CL	ML	SP	SW	CL	ML
EPA 8260B (PCE µg/kg)	<b>1.8 J</b>	<b>5.2 J</b>	<b>2 J</b>	<b>1.9 J</b>	6 U	<b>1.4 J</b>	6 U

**Notes:**

<sup>1</sup> - Draeger<sup>®</sup> tube ranged from zero to 1 ppm of PCE.

Bold - indicates non-zero values for PID and Draeger<sup>®</sup> tube readings and values above method detection limit for EPA 8260B

**Abbreviations and Acronyms:**

µg/kg - micrograms per kilogram

bgs - below ground surface

CA - California

EPA - U.S. Environmental Protection Agency

J - estimated value

NAS - Naval Air Station

PCE - tetrachloroethene

PID - photoionization detector

ppm - parts per million

U - not detected at or above the laboratory reporting limit (value indicates the reporting limit)

USCS - Unified Soil Classification System

**USCS Classifications:**

CL - clay

ML - silt

SM - silty sand

SP - poorly graded sand

SW - well graded sand

SW-SM - well graded sand with silt



## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 3-2

**CONTINUOUS SOIL CORE SOIL SAMPLE RESULTS**  
**FORMER NAS MOFFETT FIELD**  
**MOFFETT FIELD, CA**

Sample Number	86-WOPT-305	86-WOPT-306	86-WOPT-307	86-WOPT-308	86-WOPT-301	86-WOPT-312	86-WOPT-313
Sample Location	CC-88-1	CC-88-1	CC-88-1	CC-88-1	CC-88-1	CC-88-2	CC-88-2
Sample Date	4/6/2005	4/6/2005	4/6/2005	4/6/2005	4/6/2005	4/7/2005	4/7/2005
Sample Depth (feet bgs)	8-8.5	9-9.5	15-15.5	36-36.5	52-52.5	12.5-13.5	18.5-19
Analyte							
MOISTURE (PERCENT)	15.2	20.5	16.8	18.5	14.3	22.2	17.7
VOCs (EPA Method 8260B) ( $\mu\text{g/kg}$ )							
ACETONE	120 U	130 U	120 U	120 U	120 U	130 U	120 U
BENZENE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
BROMODICHLOROMETHANE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
BROMOFORM	6 U	6 U	6 U	6 U	6 U	6 U	6 U
BROMOMETHANE	12 U	13 U	12 U	12 U	12 U	13 U	12 U
2-BUTANONE	59 U	63 U	60 U	61 U	58 U	64 U	61 U
CARBON DISULFIDE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
CARBON TETRACHLORIDE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
CHLOROBENZENE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
CHLOROETHANE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
CHLOROFORM	6 U	6 U	6 U	6 U	6 U	6 U	6 U
CHLOROMETHANE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
DIBROMOCHLOROMETHANE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
1,1-DICHLOROETHANE	6 U	4.1 J	1.6 J	2.5 J	6 U	3.1 J	6 U
1,2-DICHLOROETHANE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
1,1-DICHLOROETHENE	1.1 J	7.1	3 J	9	3.8 J	4.1 J	8.1
CIS-1,2-DICHLOROETHENE	20	77	40	34	16	50	3100
TRANS-1,2-DICHLOROETHENE	6 U	6 U	6 U	6 U	6 U	6 U	7.3
1,2-DICHLOROPROPANE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
CIS-1,3-DICHLOROPROPENE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
TRANS-1,3-DICHLOROPROPENE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
ETHYL BENZENE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
2-HEXANONE	59 U	63 U	60 U	61 U	58 U	64 U	61 U
METHYL TERT-BUTYL ETHER	6 U	6 U	6 U	6 U	6 U	6 U	6 U
4-METHYL-2-PENTANONE	59 U	63 U	60 U	61 U	58 U	64 U	61 U
METHYLENE CHLORIDE	59 U	63 U	60 U	61 U	58 U	64 U	61 U
STYRENE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
1,1,2,2-TETRACHLOROETHANE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
TETRACHLOROETHENE	4.6 J	35	3.2 J	28	10	1600	2300
TOLUENE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
1,1,2-TRICHLOROETHANE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
1,1,1-TRICHLOROETHANE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
TRICHLOROETHENE	250 J	1200 J	240	1000 J	450 J	560	910
VINYL ACETATE	59 U	63 U	60 U	61 U	58 U	64 U	61 U
VINYL CHLORIDE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
XYLENES (TOTAL)	18 U	19 U	18 U	18 U	18 U	19 U	18 U
TOC (Walkley-Black Method) (mg/kg)							
TOTAL ORGANIC CARBON	2000 U	1820 J	2000 U	8460	2000 U	2600 U	4780

**Notes:**

Bold - indicates value above method detection limit

**Abbreviations and Acronyms:** $\mu\text{g/kg}$  - micrograms per kilogram

bgs - below ground surface

CA - California

EPA - U.S. Environmental Protection Agency

J - estimated value

 $\text{mg/kg}$  - milligrams per kilogram

NAS - Naval Air Station

TOC - total organic carbon

U - not detected at or above the reporting

limit (value indicates the reporting limit)

VOC - volatile organic compound

## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 3-2

**CONTINUOUS SOIL CORE SOIL SAMPLE RESULTS**  
**FORMER NAS MOFFETT FIELD**  
**MOFFETT FIELD, CA**

Sample Number	86-WOPT-311	86-WOPT-314	86-WOPT-315	86-WOPT-316	86-WOPT-317	86-WOPT-318	86-WOPT-319
Sample Location	CC-88-2	CC-88-2	CC-88-2	CC-88-2	CC-88-2	CC-88-2	CC-88-2
Sample Date	4/7/2005	4/7/2005	4/7/2005	4/7/2005	4/7/2005	4/7/2005	4/7/2005
Sample Depth (feet bgs)	20.5-21	25-25.5	26-26.5	26.5-27	41-41.5	48-48.5	54-54.5
Analyte							
MOISTURE (PERCENT)	23.8	20.7	14.3	23	18.5	17.7	20.8
VOCs (EPA Method 8260B) ( $\mu\text{g/kg}$ )							
ACETONE	130 U	130 U	120 U	130 U	120 U	120 U	130 U
BENZENE	7 U	6 U	6 U	7 U	6 U	6 U	6 U
BROMODICHLOROMETHANE	7 U	6 U	6 U	7 U	6 U	6 U	6 U
BROMOFORM	7 U	6 U	6 U	7 U	6 U	6 U	6 U
BROMOMETHANE	13 UJ	13 UJ	12 U	13 UJ	12 UJ	12 UJ	13 UJ
2-BUTANONE	66 U	63 U	58 U	65 U	61 U	61 U	63 U
CARBON DISULFIDE	7 U	6 U	6 U	7 U	6 U	6 U	6 U
CARBON TETRACHLORIDE	7 U	6 U	6 U	7 U	6 U	6 U	6 U
CHLOROBENZENE	7 UJ	6 U	6 U	7 U	6 U	6 U	6 U
CHLOROETHANE	7 U	6 U	6 U	7 U	6 U	6 U	6 U
CHLOROFORM	7 U	6 U	6 U	7 U	6 U	6 U	6 U
CHLOROMETHANE	7 U	6 U	6 U	7 U	6 U	6 U	6 U
DIBROMOCHLOROMETHANE	7 U	6 U	6 U	7 U	6 U	6 U	6 U
1,1-DICHLOROETHANE	7 U	6 U	6 U	7 U	3.1 J	3.2 J	6 U
1,2-DICHLOROETHANE	7 U	6 U	6 U	7 U	6 U	6 U	6 U
1,1-DICHLOROETHENE	12	3.5 J	2.6 J	3.9 J	8.1	15	5.9 J
CIS-1,2-DICHLOROETHENE	3000	190	420	560	66	30	16
TRANS-1,2-DICHLOROETHENE	12	3.9 J	2.9 J	4.8 J	6 U	6 U	6 U
1,2-DICHLOROPROPANE	7 U	6 U	6 U	7 U	6 U	6 U	6 U
CIS-1,3-DICHLOROPROPENE	7 U	6 U	6 U	7 U	6 U	6 U	6 U
TRANS-1,3-DICHLOROPROPENE	7 U	6 U	6 U	7 U	6 U	6 U	6 U
ETHYL BENZENE	7 U	6 U	6 U	7 U	6 U	6 U	6 U
2-HEXANONE	66 UJ	63 U	58 U	65 U	61 U	61 U	63 U
METHYL TERT-BUTYL ETHER	7 U	6 U	6 U	7 U	6 U	6 U	6 U
4-METHYL-2-PENTANONE	66 U	63 U	58 U	65 U	61 U	61 U	63 U
METHYLENE CHLORIDE	66 U	63 U	58 U	65 U	61 U	61 U	63 U
STYRENE	7 U	6 U	6 U	7 U	6 U	6 U	6 U
1,1,2,2-TETRACHLOROETHANE	7 U	6 U	6 U	7 U	6 U	6 U	6 U
TETRACHLOROETHENE	52	1300	2000	4.6 J	15	6 U	23
TOLUENE	7 U	6 U	6 U	7 U	6 U	6 U	6 U
1,1,2-TRICHLOROETHANE	7 U	6 U	6 U	7 U	6 U	6 U	6 U
1,1,1-TRICHLOROETHANE	7 U	6 U	6 U	7 U	6 U	6 U	6 U
TRICHLOROETHENE	23 J	1100	1400	4.5 J	450 J	1900 J	1300
VINYL ACETATE	66 UJ	63 U	58 U	65 U	61 U	61 U	63 U
VINYL CHLORIDE	7 U	6 U	6 U	7 U	6 U	6 U	6 U
XYLENES (TOTAL)	20 U	19 U	18 U	19 U	18 U	18 U	19 U
TOC (Walkley-Black Method) (mg/kg)							
TOTAL ORGANIC CARBON	4730	2600 U	2600 U	7450	2600 U	2600 U	2600 U

**Notes:**

Bd - indicates value above method detection limit

**Abbreviations and Acronyms:** $\mu\text{g/kg}$  - micrograms per kilogram

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J - estimated value

 $\text{mg/kg}$  - milligrams per kilogram

NAS - Naval Air Station

TOC - total organic carbon

U - not detected at or above the reporting

limit (value indicates the reporting limit)

VOC - volatile organic compound

## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 3-2

**CONTINUOUS SOIL CORE SOIL SAMPLE RESULTS**  
**FORMER NAS MOFFETT FIELD**  
**MOFFETT FIELD, CA**

Sample Number	86-WOPT-322	86-WOPT-323	86-WOPT-324	86-WOPT-325	86-WOPT-326	86-WOPT-327	86-WOPT-328
Sample Location	CC-88-3	CC-88-3	CC-88-3	CC-88-3	CC-88-3	CC-88-3	CC-88-3
Sample Date	4/7/2005	4/7/2005	4/7/2005	4/7/2005	4/7/2005	4/7/2005	4/7/2005
Sample Depth (feet bgs)	7-7.5	9.5-10	10-10.5	14-14.5	19-19.5	27-27.5	44.5-45
Analyte							
MOISTURE (PERCENT)	22.9	20.9	21.8	20.3	19.8	12.3	13.3
VOCs (EPA Method 8260B) ( $\mu\text{g/kg}$ )							
ACETONE	130 U	130 U	130 U	130 U	120 U	110 U	120 U
BENZENE	7 U	6 U	6 U	6 U	6 U	6 U	6 U
BROMODICHLOROMETHANE	7 U	6 U	6 U	6 U	6 U	6 U	6 U
BROMOFORM	7 U	6 U	6 U	6 U	6 U	6 U	6 U
BROMOMETHANE	13 UJ	13 UJ	13 UJ	13 UJ	12 UJ	11 UJ	12 UJ
2-BUTANONE	65 U	63 U	64 U	63 U	62 U	57 U	58 U
CARBON DISULFIDE	7 U	6 U	6 U	6 U	6 U	6 U	6 U
CARBON TETRACHLORIDE	7 U	6 U	6 U	6 U	6 U	6 U	6 U
CHLOROBENZENE	7 U	6 U	6 U	6 U	6 U	6 U	6 U
CHLOROETHANE	7 U	6 U	6 U	6 U	6 U	6 U	6 U
CHLOROFORM	7 U	6 U	6 U	6 U	6 U	6 U	6 U
CHLOROMETHANE	7 U	6 U	6 U	6 U	6 U	6 U	6 U
DIBROMOCHLOROMETHANE	7 U	6 U	6 U	6 U	6 U	6 U	6 U
1,1-DICHLOROETHANE	3 J	4.8 J	4.4 J	9.2	6 U	1.6 J	6 U
1,2-DICHLOROETHANE	7 U	6 U	6 U	6 U	6 U	6 U	6 U
1,1-DICHLOROETHENE	1 J	4 J	4 J	36	7.9	3.5 J	2.8 J
CIS-1,2-DICHLOROETHENE	37	85	79	2300	2400	1400	14
TRANS-1,2-DICHLOROETHENE	7 U	6 U	6 U	8.1	4.9 J	9.9	6 U
1,2-DICHLOROPROPANE	7 U	6 U	6 U	6 U	6 U	6 U	6 U
CIS-1,3-DICHLOROPROPENE	7 U	6 U	6 U	6 U	6 U	6 U	6 U
TRANS-1,3-DICHLOROPROPENE	7 U	6 U	6 U	6 U	6 U	6 U	6 U
ETHYL BENZENE	7 U	6 U	6 U	6 U	6 U	6 U	6 U
2-HEXANONE	65 U	63 U	64 U	63 UJ	62 UJ	57 UJ	58 UJ
METHYL TERT-BUTYL ETHER	7 U	6 U	6 U	6 U	6 U	6 U	6 U
4-METHYL-2-PENTANONE	65 U	63 UJ	64 U	63 UJ	62 U	57 U	58 U
METHYLENE CHLORIDE	65 U	63 U	64 U	63 U	62 U	57 U	58 U
STYRENE	7 U	6 U	6 U	6 U	6 U	6 U	6 U
1,1,2,2-TETRACHLOROETHANE	7 U	6 UJ	6 U	6 UJ	6 U	6 U	6 U
TETRACHLOROETHENE	130	1200	2700	5300	2400	0.95 J	6 U
TOLUENE	7 U	6 U	6 U	6 U	6 U	6 U	6 U
1,1,2-TRICHLOROETHANE	7 U	6 U	6 U	6 U	6 U	6 U	6 U
1,1,1-TRICHLOROETHANE	7 U	6 U	6 U	6 U	6 U	6 U	6 U
TRICHLOROETHENE	150	410	540	4400	1100	7.5	1700
VINYL ACETATE	65 U	63 U	64 U	63 UJ	62 UJ	57 UJ	58 UJ
VINYL CHLORIDE	7 U	6 U	6 U	6 U	6 U	6 U	6 U
XYLENES (TOTAL)	19 U	19 U	19 U	19 U	19 U	17 U	17 U
TOC (Walkley-Black Method) (mg/kg)							
TOTAL ORGANIC CARBON	6370	1870 J	2600	2370 J	3550	1850 J	1910 J

**Notes:**

Bd - indicates value above method detection limit

**Abbreviations and Acronyms:** $\mu\text{g/kg}$  - micrograms per kilogram

bgs - below ground surface

CA - California

EPA - U.S. Environmental Protection Agency

J - estimated value

mg/kg - milligrams per kilogram

NAS - Naval Air Station

TOC - total organic carbon

U - not detected at or above the reporting

limit (value indicates the reporting limit)

VOC - volatile organic compound

## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 3-2

**CONTINUOUS SOIL CORE SOIL SAMPLE RESULTS**  
**FORMER NAS MOFFETT FIELD**  
**MOFFETT FIELD, CA**

Sample Number	86-WOPT-332	86-WOPT-333	86-WOPT-334	86-WOPT-335	86-WOPT-336	86-WOPT-337	86-WOPT-341
Sample Location	CC-88-4	CC-88-4	CC-88-4	CC-88-4	CC-88-4	CC-88-4	CC-88-5
Sample Date	4/8/2005	4/8/2005	4/8/2005	4/8/2005	4/8/2005	4/8/2005	4/8/2005
Sample Depth (feet bgs)	9.5-10	30-30.5	36-36.5	41.5-42	49.5-50	58-58.5	25.5-26
Analyte							
MOISTURE (PERCENT)	17.3	22.1	21.4	14.5	17.9	18.9	20.5
VOCs (EPA Method 8260B) ( $\mu\text{g/kg}$ )							
ACETONE	120 U	130 U	130 U	120 U	120 U	120 U	130 U
BENZENE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
BROMODICHLOROMETHANE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
BROMOFORM	6 U	6 U	6 U	6 U	6 U	6 U	6 U
BROMOMETHANE	12 UJ	13 UJ	13 UJ	12 UJ	12 UJ	12 UJ	13 UJ
2-BUTANONE	60 U	64 U	64 U	58 U	61 U	62 U	63 U
CARBON DISULFIDE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
CARBON TETRACHLORIDE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
CHLOROBENZENE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
CHLOROETHANE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
CHLOROFORM	6 U	6 U	6 U	6 U	6 U	6 U	6 U
CHLOROMETHANE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
DIBROMOCHLOROMETHANE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
1,1-DICHLOROETHANE	5.3 J	4.4 J	4.2 J	2.7 J	6 U	6 U	6 U
1,2-DICHLOROETHANE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
1,1-DICHLOROETHENE	6.1	7	6.6	4.6 J	3.5 J	6 U	2.1 J
CIS-1,2-DICHLOROETHENE	100	430	38	62	12	6 U	63
TRANS-1,2-DICHLOROETHENE	6 U	25	6 U	6 U	6 U	6 U	6 U
1,2-DICHLOROPROPANE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
CIS-1,3-DICHLOROPROPENE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
TRANS-1,3-DICHLOROPROPENE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
ETHYL BENZENE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
2-HEXANONE	60 U	64 U	64 U	58 U	61 U	62 U	63 U
METHYL TERT-BUTYL ETHER	6 U	6 U	6 U	6 U	6 U	6 U	6 U
4-METHYL-2-PENTANONE	60 U	64 U	64 U	58 U	61 U	62 U	63 U
METHYLENE CHLORIDE	60 U	64 U	64 U	58 U	61 U	62 U	63 U
STYRENE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
1,1,2,2-TETRACHLOROETHANE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
TETRACHLOROETHENE	110	6 U	14	2.1 J	6 U	6 U	1.8 J
TOLUENE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
1,1,2-TRICHLOROETHANE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
1,1,1-TRICHLOROETHANE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
TRICHLOROETHENE	350 J	5.7 J	96	290 J	220	6 U	180
VINYL ACETATE	60 U	64 U	64 U	58 U	61 U	62 U	63 U
VINYL CHLORIDE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
XYLENES (TOTAL)	18 U	19 U	19 U	18 U	18 U	18 U	19 U
TOC (Walkley-Black Method) (mg/kg)							
TOTAL ORGANIC CARBON	2600 U	2790	1270 J	2600 U	2600 U	1650 J	2600 U

**Notes:**

Bold - indicates value above method detection limit

**Abbreviations and Acronyms:** $\mu\text{g/kg}$  - micrograms per kilogram

bgs - below ground surface

CA - California

EPA - U.S. Environmental Protection Agency

J - estimated value

mg/kg - milligrams per kilogram

NAS - Naval Air Station

TOC - total organic carbon

U - not detected at or above the reporting

limit (value indicates the reporting limit)

VOC - volatile organic compound

## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 3-2

**CONTINUOUS SOIL CORE SOIL SAMPLE RESULTS**  
**FORMER NAS MOFFETT FIELD**  
**MOFFETT FIELD, CA**

Sample Number	86-WOPT-342	86-WOPT-343	86-WOPT-344	86-WOPT-345	86-WOPT-346	86-WOPT-347
Sample Location	CC-88-5	CC-88-5	CC-88-5	CC-88-5	CC-88-5	CC-88-5
Sample Date	4/8/2005	4/8/2005	4/8/2005	4/8/2005	4/8/2005	4/8/2005
Sample Depth (feet bgs)	26-26.5	38-38.5	41.5-42	48-48.5	50.5-51	58.5-59
Analyte						
MOISTURE (PERCENT)	22.8	20.4	15.4	10.9	18.5	19.8
VOCs (EPA Method 8260B) ( $\mu\text{g/kg}$ )						
ACETONE	130 U	130 U	120 U	110 U	120 U	120 U
BENZENE	7 U	6 U	6 U	6 U	6 U	6 U
BROMODICHLOROMETHANE	7 U	6 U	6 U	6 U	6 U	6 U
BROMOFORM	7 U	6 U	6 U	6 U	6 U	6 U
BROMOMETHANE	13 UJ	13 UJ	12 UJ	11 UJ	12 UJ	12 U
2-BUTANONE	65 U	63 U	59 U	56 U	61 U	62 U
CARBON DISULFIDE	7 U	6 U	6 U	6 U	6 U	6 U
CARBON TETRACHLORIDE	7 U	6 U	6 U	6 U	6 U	6 U
CHLOROBENZENE	7 U	6 U	6 U	6 U	6 U	6 U
CHLOROETHANE	7 U	6 U	6 U	6 U	6 U	6 U
CHLOROFORM	7 U	6 U	6 U	6 U	6 U	6 U
CHLOROMETHANE	7 U	6 U	6 U	6 U	6 U	6 U
DIBROMOCHLOROMETHANE	7 U	6 U	6 U	6 U	6 U	6 U
1,1-DICHLOROETHANE	4.5 J	8	4.4 J	6 U	2.6 J	6 U
1,2-DICHLOROETHANE	7 U	6 U	6 U	6 U	6 U	6 U
1,1-DICHLOROETHENE	7.7	17	16	2.3 J	7.7	3.3 J
CIS-1,2-DICHLOROETHENE	320 J	150	73	31	46	5.9 J
TRANS-1,2-DICHLOROETHENE	2 J	6 U	6 U	6 U	6 U	6 U
1,2-DICHLOROPROPANE	7 U	6 U	6 U	6 U	6 U	6 U
CIS-1,3-DICHLOROPROPENE	7 U	6 U	6 U	6 U	6 U	6 U
TRANS-1,3-DICHLOROPROPENE	7 U	6 U	6 U	6 U	6 U	6 U
ETHYL BENZENE	7 U	6 U	6 U	6 U	6 U	6 U
2-HEXANONE	65 U	63 U	59 U	56 U	61 U	62 U
METHYL TERT-BUTYL ETHER	7 U	6 U	6 U	6 U	6 U	6 U
4-METHYL-2-PENTANONE	65 U	63 U	59 U	56 U	61 U	62 U
METHYLENE CHLORIDE	65 U	63 U	59 U	56 U	61 U	62 U
STYRENE	7 U	6 U	6 U	6 U	6 U	6 U
1,1,2,2-TETRACHLOROETHANE	7 U	6 U	6 U	6 U	6 U	6 U
TETRACHLOROETHENE	5.2 J	2 J	1.9 J	6 U	1.4 J	6 U
TOLUENE	7 U	6 U	6 U	6 U	6 U	6 U
1,1,2-TRICHLOROETHANE	7 U	6 U	6 U	6 U	6 U	6 U
1,1,1-TRICHLOROETHANE	7 U	6 U	6 U	6 U	6 U	6 U
TRICHLOROETHENE	170	770 J	760 J	230 J	570 J	230 J
VINYL ACETATE	65 U	63 U	59 U	56 U	61 U	62 U
VINYL CHLORIDE	7 U	6 U	6 U	6 U	6 U	6 U
XYLENES (TOTAL)	19 U	19 U	18 U	17 U	18 U	19 U
TOC (Walkley-Black Method) (mg/kg)						
TOTAL ORGANIC CARBON	2600 U	1270 J	2600 U	1220 J	1420 J	1990 J

**Notes:**

Bd - indicates value above method detection limit

**Abbreviations and Acronyms:** $\mu\text{g/kg}$  - micrograms per kilogram

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J - estimated value

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NAS - Naval Air Station

TOC - total organic carbon

U - not detected at or above the reporting

limit (value indicates the reporting limit)

VOC - volatile organic compound

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- A lithologic layer between approximately 9 and 12 feet bgs: groundwater was often first observed within this range. This range is also the approximate depth at which PCE may have entered the subsurface (via sewer trench, or sump and tank excavation bottoms), as evidenced by the soil PCE concentrations from borings CC-88-2 through CC-88-4. Soil and groundwater sample collection was attempted at this depth range at each CPT/DPT location, whether or not the CPT log indicated the presence of permeable soils.
- All permeable layers: Soil and groundwater sample collection was attempted at each permeable layer indicated on the CPT log. In the absence of obvious permeable layers consisting of sand or sand and gravel (as indicated on the CPT logs), samples from silt with elevated cone bearing measurements and zero pore water pressure measurements (possible indicators of sufficient permeability to yield a water sample) were attempted.
- A silt or clayey silt layer usually between 30 and 40 feet bgs: This interval was often void of highly permeable sand and gravely sand. Soil and groundwater samples from silt or clayey silt were collected to evaluate the distribution of PCE in zones of lower permeability.

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## 4.0 CONE PENETROMETER AND DIRECT PUSH TESTING

This section provides a summary of the objective, activities, and results of activities associated with cone penetrometer testing (CPT) logging and direct push technology (DPT) sampling.

### 4.1 CPT OBJECTIVES

Objectives of CPT logging and DPT sampling were to answer Data Quality Objective Decisions Questions Nos. 2 and 3 in the Sampling and Analysis Plan to the *Final West-Side Aquifers Treatment System Optimization Work Plan Addendum 1* (Tetra Tech FW, Inc. [TtFW], 2005a): Is tetrachloroethene (PCE) detected above action levels in the saturated zone, which would indicate a potential source area? Is PCE detected above action levels in the saturated zone downgradient from the source area? Specifically, the objectives were to:

- Compare CPT logs with adjacent corehole lithologic logs.
- Evaluate CPT logs and soil core analytical data to identify lithologic layers for sampling.
- Collect groundwater and soil samples needed to evaluate PCE extent.
- Collect groundwater and soil samples needed to evaluate environmental response actions.

### 4.2 CPT/DPT FIELD ACTIVITIES

The activities associated with CPT logging and sampling were the following:

- Geophysical survey for underground utilities
- CPT logging
- DPT groundwater HydroPunch<sup>®</sup> sampling for volatile organic compounds (VOCs), anions, cations, and treatability studies
- DPT soil sampling for VOCs, total organic carbon (TOC), and treatability studies
- Boring backfilling, site restoration, and surveying

Twenty-three CPT/DPT locations were logged in accordance with the *Final West-Side Aquifers Treatment System Optimization Work Plan Addendum 1* (TtFW, 2005a). CPT/DPT locations are shown on Figures 4-1 and 4-2. Three borings were advanced at each CPT/DPT location. The initial CPT boring was advanced to collect geologic information. This site-specific geologic information was used to select depth-specific intervals for DPT groundwater and soil sampling from the remaining two borings. After collecting the geologic information, the initial CPT boring was properly backfilled with a Portland cement-bentonite grout mixture using a tremie pipe. The second boring was advanced using DPT equipment to collect depth-specific groundwater

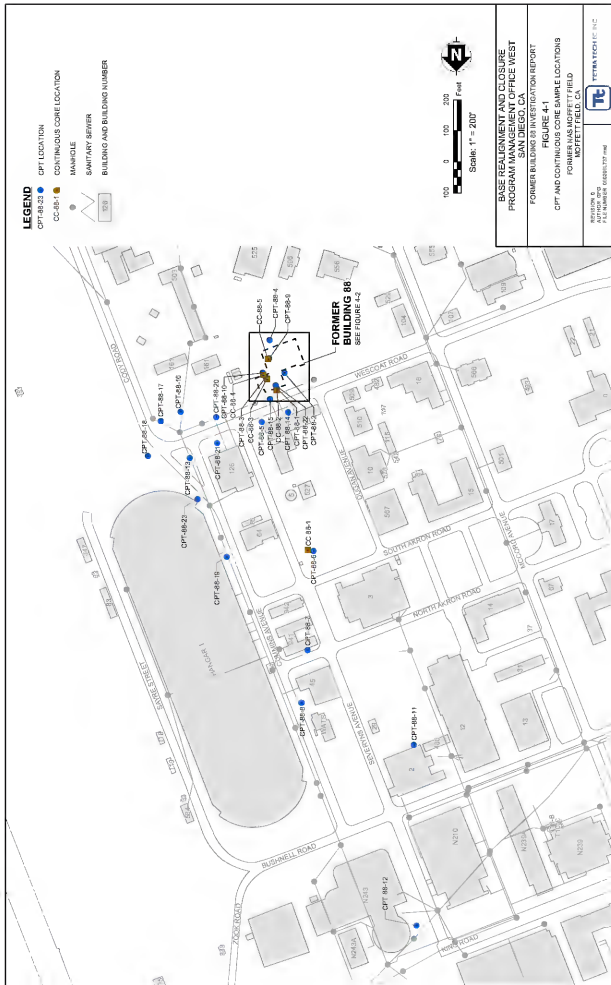
samples. The second boring was located about 4 feet away from the first boring and was always used to collect groundwater samples to minimize the potential for grout slurry infiltration from adjacent borings. After collecting groundwater samples, the second boring was properly backfilled. The third boring was located about 4 feet away from the second boring. The third boring was advanced using DPT equipment to collect depth-specific soil samples. After collecting the soil samples, the third boring was properly backfilled. Finally, the site was restored to the pre-investigation condition. Corresponding DPT groundwater and soil sampling borings were not given a distinct name from the CPT boring. All DPT borings for groundwater and soil sampling were identified by the initial CPT boring identification.

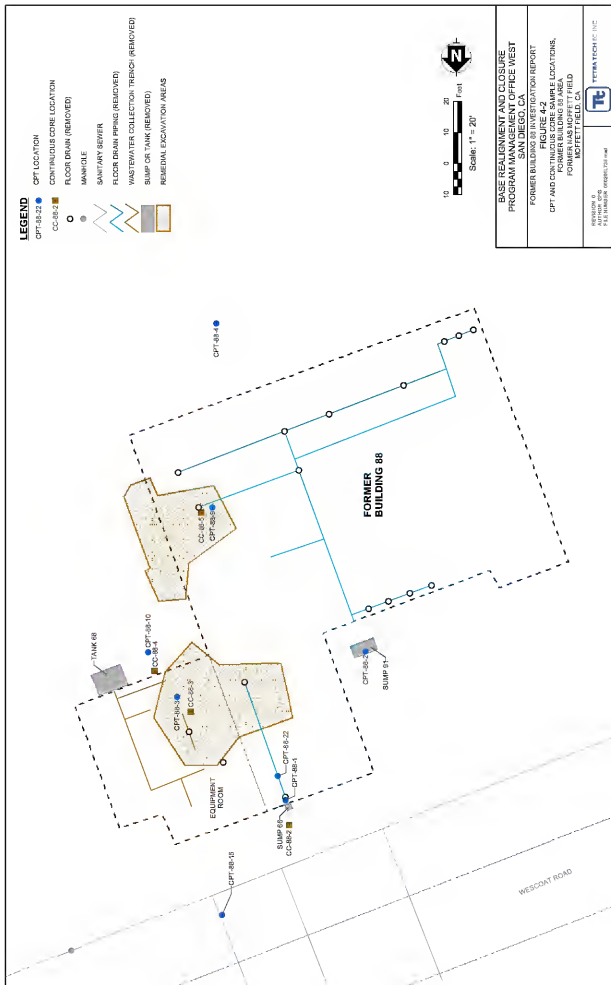
CPT/DPT locations were logged and sampled between April 11 and May 6, 2005. Underground Service Alert was notified, a geophysical survey performed to locate underground utilities, and each borehole was cleared by hand-augering to 5 feet below ground surface (bgs) (see Appendix A, Photograph A-10).

CPT-88-1 was located about 2 feet south of Sump 66, as shown on Figure 4-2. CPT-88-1 was located about 8 feet south of continuous core boring CC-88-2 to ensure that samples collected at the CPT location would not be compromised by cement-bentonite grout used to backfill the continuous core boring. CPT-88-1 through CPT-88-4, CPT-88-9, and CPT-88-10 were located at the former Building 88 area, as originally proposed (see Figure 4-2). CPT-88-5 through CPT-88-8, CPT-88-11, and CPT-88-12 were located downgradient of the Building 88 footprint, as originally proposed (see Figure 4-1). CPT-88-13, CPT-88-15, CPT-88-19, and CPT-88-20 were located along the sewer line to investigate soil gas hot spots. CPT-88-14, CPT-88-16, CPT-88-17, CPT-88-18, CPT-88-21, CPT-88-22, and CPT-88-23 were located as step-outs (see Figures 4-1 and 4-2). CPT/DPT activity photographs were included in Appendix A.

#### 4.2.1 CPT Lithologic Logs

CPT logging consisted of collecting continuous geologic information from 5 to 60 feet bgs. CPT-88-1, CPT-88-3, CPT-88-9, and CPT-88-10 were located 4 to 8 feet from the continuous soil cores borings CC-88-2, CC-88-3, CC-88-5, CC-88-4, respectively. The spacing was selected to enable CPT lithologic log to continuous core lithologic log correlation (see Section 4.3.1) and to minimize the potential for grout slurry infiltration from the backfilled continuous core borings to adversely affect DPT sample quality. CPT-88-6 was located approximately 20 feet from CC-88-1. The spacing was a departure from the *Final West-Side Aquifers Treatment System Work Plan* (Foster Wheeler Environmental Corporation, 2003), but facilitated traffic flow in the parking area where CPT-88-6 and CC-88-1 were located. CPT lithologic logs are included in Appendix E.





#### 4.2.2 Groundwater Sampling

At each CPT logging location, a DPT boring was advanced to the desired depth intervals for groundwater sampling using HydroPunch® equipment. Groundwater samples were collected or attempted at the depth intervals described in Section 3.3.2. Groundwater samples were collected over an exposed 2-foot screen interval using a disposable Teflon™ bailer. A total of 116 depth-specific groundwater HydroPunch® samples were collected from 23 CPT/DPT locations. The HydroPunch® screen was left open to the formation for at least 20 minutes (as specified in the Sampling and Analysis Plan to the *Final West-Side Aquifers Treatment System Optimization Work Plan Addendum 1* [TtFW, 2005a]) to allow groundwater to enter the screen at each sample interval. Groundwater could not be collected in 17 sampling intervals, as there was no groundwater within the well screen or there was insufficient volume for sampling after waiting at least 20 minutes with the HydroPunch® screen left open to the formation. These attempted sampling intervals are indicated with a “no water” note on the CPT logs (see Appendix E). Groundwater samples were analyzed for VOCs, anions, and cations. Four groundwater samples were analyzed for microorganisms (two collected from location CPT-88-3 and two collected from location CPT-88-19). One groundwater sample (collected from location CPT-88-3) was retained for chemical oxidation treatability studies.

#### 4.2.3 Soil Sampling

At each CPT logging location, a second DPT boring was advanced to the same depth as the previously collected groundwater samples to obtain soil samples using coring equipment. The coring equipment consisted of a 1-foot-long, nominal 1-inch-diameter core tube, with two 6-inch-long stainless steel liners. Soil samples were collected by pushing an En Core® sampler directly into the end of the soil filled core liners. A total of 136 soil samples were collected from 23 CPT/DPT boring locations. Not all soil sampling attempts were successful. Occasionally, the retrieved soil sample core barrel contained insufficient soil sample volume. A second attempt to collect a soil sample was made at intervals where the first attempt was unsuccessful. Intervals where soils could not be obtained are indicated with a “no recovery” note on the CPT logs (see Appendix E). Soil samples were analyzed for VOCs and TOC. Four soil samples were analyzed for microorganisms (two collected from location CPT-88-3 at the depth interval of 10 to 14 feet bgs and 46 to 48 feet bgs, and two collected from location CPT-88-19 at the depth interval of 6 to 9 feet bgs and 47 to 50 feet bgs).

#### 4.2.4 CPT/DPT Boring Backfilling and Location Survey

CPT lithologic borings, DPT groundwater sample borings, and DPT soil sample borings were backfilled immediately after completion. Each boring was backfilled with a Portland cement-benonite grout mixture pumped from the bottom of the boring using a tremie pipe in accordance with Santa Clara Valley Water District permit requirements. Boring permits are included in Appendix E. CPT/DPT borings located in paved areas were repaved to match the existing

surface. CPT horizontal and vertical coordinates were surveyed. Survey data for the CPT/DPT locations were included in Appendix C.

### 4.3 CPT ACTIVITY RESULTS

The CPT lithologic logs were correlated to field geologists logs (see Section 3.3.1) at locations with adjacent coreholes. Saturated zone PCE source areas were identified near Sump 66, the northern remedial excavation areas, and along the sewer alignment. Downgradient groundwater and soil PCE distribution were evaluated. CPT groundwater and soil analytical results are included in Tables 4-1 and 4-2. Activity results are summarized below.

#### 4.3.1 CPT Lithologic Log Correlation

Lithologic logs were produced for 23 CPT locations, which included five locations adjacent to continuous soil core borings. The CPT lithologic logs located adjacent to the continuous soil core borings were compared to the field geologist's lithologic logs of the continuous soil core borings (see Section 3.3.1). Fine-grained intervals reported on the field geologist's lithologic logs of the continuous soil core boring were consistently interpreted by the CPT lithologic log. Therefore, CPT lithologic logs are used for the interpretation of fine-grained lithology.

Coarse-grained intervals between 40 and 60 feet bgs were consistently reported by the field geologist and interpreted from the CPT lithologic log. The correlation of coarse-grained units was not as consistent above 40 feet bgs. For example, at location CPT-88-3 and boring CC-88-3, three intervals logged by the field geologist as fine sand and fine-to-coarse sand for the continuous soil core were interpreted as silt on the CPT lithologic log. The discrepancies in coarse-grained descriptions between the field geologist's continuous soil core logs and the CPT lithologic log could be due to formation changes over the short distance between the continuous core boring location and the CPT boring location. CPT borings were drilled about 8 feet from continuous soil core locations to avoid compromising the groundwater or soil sample integrity from the co-located DPT borings due to potential grout slurry infiltration. Discontinuity in coarse-grained soil, particularly between 20 and 40 feet bgs, is common throughout the Building 88 study area. Therefore, CPT lithologic logs are used for the interpretation of coarse-grained lithology.

A comparison of each of the field geologist's lithologic logs of the soil core boring to the corresponding CPT well pair is presented below. Lithologic symbols used below are based on the Unified Soil Classification System (USCS), as described in *Visual Classification of Soil* (Bureau of Reclamation, 1986) and the *2000 Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)* (American Society for Testing and Materials D2488-00). Lithology of CPT lithologic logs are not based on the USCS, thus a USCS lithologic symbol is not applied.

## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 4-I

**DIRECT PUSH TECHNOLOGY GROUNDWATER SAMPLE RESULTS**  
**FORMER NAS MOFFETT FIELD**  
**MOFFETT FIELD, CA**

Sample Number	86-WOPT-1000	86-WOPT-1001	86-WOPT-1003 (FD)	86-WOPT-1004	86-WOPT-1005	86-WOPT-1006
Sample Location	CPT-88-1	CPT-88-1	CPT-88-1	CPT-88-1	CPT-88-1	CPT-88-1
Sample Date	4/12/2005	4/12/2005	4/12/2005	4/12/2005	4/12/2005	4/12/2005
Sample Depth (feet bgs)	12-14	18-20	18-20	24-26	38-40	46-48
<b>Analyte</b>						
<i>1 OCs (EPA Method 8260B) (µg/L)</i>						
ACETONE	5 UJ	5 UJ	5 UJ	5 UJ	1.1 J	5 UJ
BENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BROMODICHLOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BROMOFORM	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BROMOMETHANE	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 UJ
2-BUTANONE	5 U	5 U	5 U	5 U	5 U	5 U
CARBON DISULFIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CARBON TETRACHLORIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CHLOROBENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CHLOROETHANE	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ
CHLOROFORM	0.25 J	0.5 U	0.5 U	0.18 J	0.83	0.34 J
CHLOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
DIBROMOCHLOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-DICHLOROETHANE	41	16	18	9.6	26	9
1,2-DICHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-DICHLOROETHENE	49	32	39	18	72	31
CIS-1,2-DICHLOROETHENE	630	2600 J	2800 J	910 J	680 J	110 J
TRANS-1,2-DICHLOROETHENE	4	23	22	24	11	1.7
1,2-DICHLOROPROPANE	0.49 J	0.5 U	0.5 U	0.5 U	2.4	0.5 U
CIS-1,3-DICHLOROPROPENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TRANS-1,3-DICHLOROPROPENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
ETHYL BENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-HEXANONE	5 U	5 U	5 U	5 U	5 U	5 U
M,P-XYLENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
METHYL TERT-BUTYL ETHER	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
4-METHYL-2-PENTANONE	5 U	5 U	5 U	5 U	5 U	5 U
METHYLENE CHLORIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
O-XYLENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
STYRENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-TETRACHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TETRACHLOROETHENE	1100	330 J	290 J	930 J	170 J	2.1
TOLUENE	0.5 U	0.5 U	0.5 U	0.28 J	0.5 U	0.32 J
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	2.9	0.5 U	0.5 U	3.2	81	72
1,1,2-TRICHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.33 J	0.36 J
1,1,1-TRICHLOROETHANE	0.78	0.5 U	0.5 U	1.1	0.85	2
TRICHLOROETHENE	1300	280 J	280 J	720 J	1500 J	1500 J
VINYL CHLORIDE	1.9	1.8	2.3	1.2	1.6	0.5 U
<b>Anions (EPA Method 300.0) (µg/L)</b>						
CHLORIDE	51700	53800	53900	44200	42900	40100
NITRATE (AS N)	3900	4120 J	447 J	6930	5040	7060
NITRITE (AS N)	100 U	100 U	100 U	100 U	100 U	100 U
SULFATE	419000	303008	305600	260000	303000	277000 J
<b>Total Alkalinity (EPA Method 310.1) (mg/L)</b>						
BICARBONATE (AS CaCO <sub>3</sub> )	418	430	433	429	288	328
CARBONATE (AS CaCO <sub>3</sub> )	5 U	5 U	5 U	5 U	5 U	5 U
<b>Cations (EPA Method 6010B) (mg/L)</b>						
CALCIUM	341	254	195	435	206	225
BROM	18.5	85 J	15.9 J	23.1	9.4	17.4 J
MAGNESIUM	110	80.2	68.2	103	63.6	62.9 J
POTASSIUM	11.6	9.4 J	14.7 J	9.6	4.8 J	6.1
SODIUM	48.4	41.4	41.9	45.5	35	36.9

## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 4-I

**DIRECT PUSH TECHNOLOGY GROUNDWATER SAMPLE RESULTS**  
**FORMER NAS MOFFETT FIELD**  
**MOFFETT FIELD, CA**

Sample Number	86-WOPT-1007	86-WOPT-500	86-WOPT-502	86-WOPT-503 (F0)	86-WOPT-504	86-WOPT-505
Sample Location	CPT-88-1	CPT-88-2	CPT-88-2	CPT-88-2	CPT-88-2	CPT-88-2
Sample Date	4/12/2005	4/12/2005	4/12/2005	4/12/2005	4/12/2005	4/12/2005
Sample Depth (feet bgs)	53-55	10-13	22-25	22-25	38-40	45-47
<b>Analyte</b>						
<i>LOCs (EPA Method 8260B) (µg/L)</i>						
ACETONE	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
BENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BROMODICHLOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BROMOFORM	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BROMOMETHANE	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-BUTANONE	5 U	5 U	5 U	5 U	5 U	5 U
CARBON DISULFIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CARBON TETRACHLORIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CHLOROBENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CHLOROETHANE	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ
CHLOROFORM	0.35 J	0.5 U	0.5 U	0.5 U	0.31 J	0.32 J
CHLOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
DIBROMOCHLOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-DICHLOROETHANE	6.1	73	18	16	11	9.6
1,2-DICHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-DICHLOROETHENE	26	46	31	23	22	24
CIS-1,2-DICHLOROETHENE	66	600 J	2000	2100	190 J	170
TRANS-1,2-DICHLOROETHENE	1.2	2.5	9.1	6.9	0.81	1.2
1,2-DICHLOROPROPANE	0.5 U	1.2	0.51	0.5 U	0.5 U	0.5 U
CIS-1,3-DICHLOROPROPENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TRANS-1,3-DICHLOROPROPENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
ETHYL BENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-HEXANONE	5 U	5 U	5 U	5 U	5 U	5 U
M,P-XYLENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
METHYL TERT-BUTYL ETHER	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
4-METHYL-2-PENTANONE	5 U	5 U	5 U	5 U	5 U	5 U
METHYLENE CHLORIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
O-XYLENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
STYRENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-TETRACHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TETRACHLOROETHENE	12	3.9	0.22 J	0.19 J	0.79	1.1
TOLUENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	79	2.5	1.1	0.73	21	31
1,1,2-TRICHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.26 J	0.5 U
1,1,1-TRICHLOROETHANE	1.3	0.86	0.5 U	0.5 U	1.1	1.6
TRICHLOROETHENE	1900	220	130 J	87 J	1400	1900
VINYL CHLORIDE	0.55	1.3	1.2	0.9	0.5 U	0.41 J
<b>Anions (EPA Method 300.0) (µg/L)</b>						
CHLORIDE	37700	47500	44200	44200	42200	41200
NITRATE (AS N)	8270	6660	580 J	545 J	6230	6620
NITRITE (AS N)	100 U	100 U	100 U	100 U	953	100 U
SULFATE	144000	374000	270000	265000	350000	354000
<b>Total Alkalinity (EPA Method 310.1) (mg/L)</b>						
BICARBONATE (AS CaCO <sub>3</sub> )	269	399	445	447	335	352
CARBONATE (AS CaCO <sub>3</sub> )	5 U	5 U	5 U	5 U	5 U	5 U
<b>Cations (EPA Method 6010B) (mg/L)</b>						
CALCIUM	660	262	1430 J	606 J	5720	403
IRON	10.8	22.3	156 J	99.6 J	6010 J	50.8 J
MAGNESIUM	127	88.7	138 J	99 J	2490 J	116 J
POTASSIUM	11.7	9.2	6.2	6.2	282	10.8
SODIUM	41	43	45.1	43.1	62.7	42.5



## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 4-I

**DIRECT PUSH TECHNOLOGY GROUNDWATER SAMPLE RESULTS  
FORMER NAS MOFFETT FIELD  
MOFFETT FIELD, CA**

Sample Number	86-WOPT-506	86-WOPT-539	86-WOPT-541	86-WOPT-542	86-WOPT-543 (FO)	86-WOPT-544
Sample Location	CPT-88-2	CPT-88-3	CPT-88-3	CPT-88-3	CPT-88-3	CPT-88-3
Sample Date	4/12/2005	4/14/2005	4/14/2005	4/14/2005	4/14/2005	4/14/2005
Sample Depth (feet bgs)	52-54	10-14	25-27	41-43	41-43	46-48
<b>Analyte</b>						
<i>10Cs (EPA Method 8260B) (µg/L)</i>						
ACETONE	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
BENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BROMODICHLOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BROMOFORM	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BROMOMETHANE	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ
2-BUTANONE	5 U	5 U	5 U	5 U	5 U	5 U
CARBON DISULFIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CARBON TETRACHLORIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CHLOROBENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CHLOROETHANE	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ
CHLOROFORM	0.38 J	0.29 J	0.5 U	0.33 J	0.32 J	0.37 J
CHLOROMETHANE	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ
DIBROMOCHLOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-DICHLOROETHANE	7.1	30	19	13	13	10
1,2-DICHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-DICHLOROETHENE	32	43	29	28	28	24
CIS-1,2-DICHLOROETHENE	77	1500	1500	250 J	240 J	160 J
TRANS-1,2-DICHLOROETHENE	1.1	9.5	70	2	2.9	3.3
1,2-DICHLOROPROPANE	0.5 U	0.72	0.5 U	0.5 U	0.5 U	0.5 U
CIS-1,3-DICHLOROPROPENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TRANS-1,3-DICHLOROPROPENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
ETHYL BENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-HEXANONE	5 U	5 U	5 U	5 U	5 U	5 U
M,P-XYLENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
METHYL TERT-BUTYL ETHER	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
4-METHYL-2-PENTANONE	5 U	5 U	5 U	5 U	5 U	5 U
METHYLENE CHLORIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
O-XYLENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
STYRENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-TETRACHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TETRACHLOROETHENE	2.4	300 J	22	2.9	2.7	11
TOLUENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.22 J
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	100	0.93	1.2	30	31	38
1,1,2-TRICHLOROETHANE	0.46 J	0.5 U	0.5 U	0.2 J	0.5 U	0.32 J
1,1,1-TRICHLOROETHANE	1.7	0.52	0.5 U	1.8	1.8	1.8
TRICHLOROETHENE	4300	700 J	530 J	1200 J	1100 J	1700
VINYL CHLORIDE	0.64	1.7	2	0.5 U	0.5 U	0.44 J
<b>Anions (EPA Method 300.0) (µg/L)</b>						
CHLORIDE	37700	47100	44500	40900	41100	42400
NITRATE (AS N)	8000	3140	3776	7230 J	10500 J	9310
NITRITE (AS N)	100 U	100 U	100 U	100 U	100 U	100 U
SULFATE	153000	407000 J	305000	403000	399000	319000
<b>Total Alkalinity (EPA Method 310.1) (mg/L)</b>						
BICARBONATE (AS CaCO <sub>3</sub> )	279	410	373	356	362	342
CARBONATE (AS CaCO <sub>3</sub> )	5 U	5 U	5 U	5 U	5 U	5 U
<b>Cations (EPA Method 6010B) (mg/L)</b>						
CALCIUM	442	438	636	392	335	361
IRON	10.5 J	48.7	239	21.8	27.3	33.2
MAGNESIUM	76.7 J	137 J	169 J	88.1 J	94.8 J	92.3 J
POTASSIUM	11.9	7.8	7.6	6.4	5.4	6.3
SODIUM	38.9	45.8	42.5	38.3	39.7	41.3

## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 4-I

**DIRECT PUSH TECHNOLOGY GROUNDWATER SAMPLE RESULTS**  
**FORMER NAS MOFFETT FIELD**  
**MOFFETT FIELD, CA**

Sample Number	86-WOPT-1028	86-WOPT-1029	86-WOPT-1030	86-WOPT-1031	86-WOPT-1032	86-WOPT-529
Sample Location	CPT-88-4	CPT-88-4	CPT-88-4	CPT-88-4	CPT-88-4	CPT-88-5
Sample Date	4/13/2005	4/13/2005	4/13/2005	4/13/2005	4/13/2005	4/13/2005
Sample Depth (feet bgs)	10-12	19-21	24-26	42-44	49-51	23-25
<b>Analyte</b>						
<i>TOCs (EPA Method 8260B) (µg/L)</i>						
ACETONE	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
BENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BROMODICHLOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BROMOFORM	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BROMOMETHANE	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ
2-BUTANONE	5 U	5 U	5 U	5 U	5 U	5 U
CARBON DISULFIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CARBON TETRACHLORIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CHLOROBENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CHLOROETHANE	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ
CHLOROFORM	0.5 U	0.5 U	0.56	0.33 J	0.32 J	0.21 J
CHLOROMETHANE	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ
DIBROMOCHLOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-DICHLOROETHANE	98	10	7.3	11	11	5.3
1,2-DICHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-DICHLOROETHENE	100 J	22	13	25	30	7.9
CIS-1,2-DICHLOROETHENE	860 J	610 J	340 J	210 J	160 J	170 J
TRANS-1,2-DICHLOROETHENE	5.5	4.8	4.1	2.2	1.1	1.1
1,2-DICHLOROPROPANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CIS-1,3-DICHLOROPROPENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TRANS-1,3-DICHLOROPROPENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
ETHYL BENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-HEXANONE	5 U	5 U	5 U	5 U	5 U	5 U
M,P-XYLENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
METHYL TERT-BUTYL ETHER	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
4-METHYL-2-PENTANONE	5 U	5 U	5 U	5 U	5 U	5 U
METHYLENE CHLORIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
O-XYLENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
STYRENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-TETRACHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TETRACHLOROETHENE	0.19 J	1.8	1.7	0.25 J	0.41 J	0.55
TOLUENE	0.5 U	0.5 U	0.5 U	0.26 J	0.5 U	0.5 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	0.5 U	3.8	6.9	25	45	2.2
1,1,2-TRICHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,1-TRICHLOROETHANE	0.5 U	0.69	2.5	1.9	1.8	1.6
TRICHLOROETHENE	9.9	810 J	690 J	1000 J	1500	270 J
VINYL CHLORIDE	2.9	1.1	0.5 U	0.76	0.77	0.51
<i>Anions (EPA Method 300.0) (µg/L)</i>						
CHLORIDE	49200	42400	41700	40700	40600	41100
NITRATE (AS N)	2580	3500	15700	8580	6480	8840
NITRITE (AS N)	100 U	100 U	100 U	893 U	100 U	1080
SULFATE	332000	250000	223000 J	370000	361000	478000
<i>Total Alkalinity (EPA Method 310.1) (mg/L)</i>						
BICARBONATE (AS CaCO <sub>3</sub> )	400	438	5 U	354	353	406
CARBONATE (AS CaCO <sub>3</sub> )	5 U	5 U	25.2	5 U	5 U	5 U
<i>Cations (EPA Method 6010B) (mg/L)</i>						
CALCIUM	475	438	422	602	410	705
IRON	35.7 J	212 J	43.8 J	20.9 J	22.3 J	21.1 J
MAGNESIUM	117	118	74.6	115	99.3	128
POTASSIUM	10.9	7	10.1	13.8	8	6.7
SODIUM	45.2	45.1	49.1	45.8	43.9	47.5

## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 4-I

**DIRECT PUSH TECHNOLOGY GROUNDWATER SAMPLE RESULTS**  
**FORMER NAS MOFFETT FIELD**  
**MOFFETT FIELD, CA**

Sample Number	86-WOPT-530	86-WOPT-531	86-WOPT-552	86-WOPT-553	86-WOPT-554	86-WOPT-555
Sample Location	CPT-88-5	CPT-88-5	CPT-88-6	CPT-88-6	CPT-88-6	CPT-88-6
Sample Date	4/13/2005	4/13/2005	4/15/2005	4/15/2005	4/15/2005	4/15/2005
Sample Depth (feet bgs)	46-48	50-52	20-23	29-31	42-44	47-50
<b>Analyte</b>						
<i>LOCs (EPA Method 8260B) (µg/L)</i>						
ACETONE	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
BENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BROMODICHLOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BROMOFORM	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BROMOMETHANE	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
2-BUTANONE	5 U	5 U	5 U	5 U	5 U	5 U
CARBON DISULFIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CARBON TETRACHLORIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CHLOROBENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CHLOROETHANE	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ
CHLOROFORM	0.47 J	0.45 J	0.48 J	0.46 J	0.51	0.54
CHLOROMETHANE	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ
DIBROMOCHLOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-DICHLOROETHANE	10	10	12	12	12	12
1,2-DICHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-DICHLOROETHENE	38	41	23	26	47	49
CIS-1,2-DICHLOROETHENE	120 J	110 J	280 J	260 J	200 J	210 J
TRANS-1,2-DICHLOROETHENE	1.2	0.81	2.9	2	1.2	1.1
1,2-DICHLOROPROPANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CIS-1,3-DICHLOROPROPENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TRANS-1,3-DICHLOROPROPENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
ETHYL BENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-HEXANONE	5 U	5 U	5 UJ	5 UJ	5 UJ	5 UJ
M,P-XYLENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
METHYL TERT-BUTYL ETHER	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
4-METHYL-2-PENTANONE	5 U	5 U	5 UJ	5 UJ	5 UJ	5 UJ
METHYLENE CHLORIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
O-XYLENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
STYRENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-TETRACHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TETRACHLOROETHENE	290 J	330 J	17	27	120 J	130 J
TOLUENE	0.5 U	0.5 U	0.5 U	0.5 U	0.24 J	0.5 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	92	100 J	25	39	130 J	130 J
1,1,2-TRICHLOROETHANE	0.46 J	0.4 J	0.5 U	0.5 U	0.46 J	0.5
1,1,1-TRICHLOROETHANE	1.5	1.4	1.9	1.6	1.5	1.6
TRICHLOROETHENE	2400	2800	1700 J	1500	3600	3600
VINYL CHLORIDE	0.48 J	0.53	2	1.7	0.47 J	0.53
<i>Anions (EPA Method 300.0) (µg/L)</i>						
CHLORIDE	39000	38700	37500	39000	39700	39500
NITRATE (AS N)	7430	66000	7280 J	7580 J	8360 J	7690 J
NITRITE (AS N)	100 U	100 U	100 UJ	100 UJ	100 UJ	100 UJ
SULFATE	240000	249000	256000 J	271000 J	254000 J	253000 J
<i>Total Alkalinity (EPA Method 310.1) (mg/L)</i>						
BICARBONATE (AS CaCO <sub>3</sub> )	293	286	410	396	299	306
CARBONATE (AS CaCO <sub>3</sub> )	5 U	5 U	5 U	5 U	5 U	5 U
<i>Cations (EPA Method 6010B) (mg/L)</i>						
CALCIUM	528	349	436	313	671	205
IRON	14.8 J	17.5 J	39.9 J	29.1 J	27.7 J	18.9 J
MAGNESIUM	89	75.4	140	101	158	66.5
POTASSIUM	8.5	4 J	7.3 J	5.2 J	12.8 J	3.2 J
SODIUM	41.4	37.8	44.5	43.5	44.1	36.1

## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 4-I

**DIRECT PUSH TECHNOLOGY GROUNDWATER SAMPLE RESULTS  
FORMER NAS MOFFETT FIELD  
MOFFETT FIELD, CA**

Sample Number	86-WOPT-1054	86-WOPT-1055	86-WOPT-1056 (FD)	86-WOPT-1057	86-WOPT-1058	86-WOPT-1041
Sample Location	CPT-88-7	CPT-88-7	CPT-88-7	CPT-88-7	CPT-88-7	CPT-88-8
Sample Date	4/15/2005	4/15/2005	4/15/2005	4/15/2005	4/15/2005	4/14/2005
Sample Depth (feet bgs)	10-12	23-25	23-25	30-32	39-42	10-14
<b>Analyte</b>						
<i>1OCs (EPA Method 8260B) (µg/L)</i>						
ACETONE	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
BENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BROMODICHLOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BROMOFORM	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BROMOMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
2-BUTANONE	5 U	5 U	5 U	5 U	5 U	5 U
CARBON DISULFIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CARBON TETRACHLORIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CHLOROBENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CHLOROETHANE	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ
CHLOROFORM	1.2	0.5 U	0.5 U	0.5 U	0.27 J	1.2
CHLOROMETHANE	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ
DIBROMOCHLOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-DICHLOROETHANE	13	19	18	13	15	14
1,2-DICHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-DICHLOROETHENE	12	26	24	11	31 UJ	17
CIS-1,2-DICHLOROETHENE	320 J	1100 J	1100 J	530 J	760 J	340 J
TRANS-1,2-DICHLOROETHENE	6.3	6.6	5.9	1.1	2.6	1.8
1,2-DICHLOROPROPANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CIS-1,3-DICHLOROPROPENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TRANS-1,3-DICHLOROPROPENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
ETHYL BENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-HEXANONE	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 U
M,P-XYLENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
METHYL TERT-BUTYL ETHER	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
4-METHYL-2-PENTANONE	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 U
METHYLENE CHLORIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
O-XYLENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
STYRENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-TETRACHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TETRACHLOROETHENE	3.5	7.3	6.7	5.2	46	4.9
TOLUENE	0.17 J	0.5 U	0.5 U	0.5 U	0.25 J	0.26 J
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	4.5	1.9	1.7	0.46 J	19	4.8
1,1,2-TRICHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,1-TRICHLOROETHANE	1.3	0.5 U	0.5 U	0.5 U	0.85	1.6
TRICHLOROETHENE	710 J	54	51	62	950 J	860 J
VINYL CHLORIDE	0.5 U	0.5 U	0.78	0.4 J	0.77	0.36 J
<b>Anions (EPA Method 300.0) (µg/L)</b>						
CHLORIDE	27000	31200	31500	30900	37400	26600
NITRATE (AS N)	9630 J	2660 J	2440 J	5850 J	3340 J	11500
NITRITE (AS N)	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ	100 U
SULFATE	199000 J	223000	221000 J	240000 J	295000 J	194000
<b>Total Alkalinity (EPA Method 310.1) (mg/L)</b>						
BICARBONATE (AS CaCO <sub>3</sub> )	369	417	416	371	368	349
CARBONATE (AS CaCO <sub>3</sub> )	5 U	5 U	5 U	5 U	5 U	5 U
<b>Cations (EPA Method 6010B) (mg/L)</b>						
CALCIUM	829	502 J	305 J	1440	340	1100
IRON	28.4 J	43.9 J	29.2 J	7.8	21.4 J	10.8
MAGNESIUM	111	134 J	93.4 J	199	105	142 J
POTASSIUM	12.2 J	9.3 J	7.7 J	8.9	11.9 J	13
SODIUM	46.9	46.1	42.4	51.7	44.3	52.7

## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 4-I

**DIRECT PUSH TECHNOLOGY GROUNDWATER SAMPLE RESULTS**  
**FORMER NAS MOFFETT FIELD**  
**MOFFETT FIELD, CA**

Sample Number	86-WOPT-1042	86-WOPT-1043	86-WOPT-1044	86-WOPT-1045 (F0)	86-WOPT-1046	86-WOPT-1016
Sample Location	CPT-88-8	CPT-88-8	CPT-88-8	CPT-88-8	CPT-88-8	CPT-88-9
Sample Date	4/14/2005	4/14/2005	4/14/2005	4/14/2005	4/14/2005	4/13/2005
Sample Depth (feet bgs)	18-20	24-26	32-34	32-34	54-55	11-13
<b>Analyte</b>						
<i>TOCs (EPA Method 8260B) (µg/L)</i>						
ACETONE	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
BENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BROMODICHLOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BROMOFORM	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BROMOMETHANE	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ
2-BUTANONE	5 U	5 U	5 U	5 U	5 U	5 U
CARBON DISULFIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CARBON TETRACHLORIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CHLOROBENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CHLOROETHANE	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ
CHLOROFORM	0.5 U	0.5 U	0.23 J	0.19 J	0.22 J	0.57
CHLOROMETHANE	0.5 UJ	0.5 UJ	0.3 UJ	0.5 U	0.5 UJ	0.5 UJ
DIBROMOCHLOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-DICHLOROETHANE	8.6	17	18	16	6.4	7.4
1,2-DICHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-DICHLOROETHENE	9.8	27 J	40	31	33	10
CIS-1,2-DICHLOROETHENE	66	810 J	720 J	760 J	61	180 J
TRANS-1,2-DICHLOROETHENE	0.72	2.5	3.9	4.8	0.66	3.8
1,2-DICHLOROPROPANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CIS-1,3-DICHLOROPROPENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TRANS-1,3-DICHLOROPROPENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
ETHYL BENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-HEXANONE	5 U	5 U	5 U	5 U	5 U	5 U
M,P-XYLENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
METHYL TERT-BUTYL ETHER	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
4-METHYL-2-PENTANONE	5 U	5 U	5 U	5 U	5 U	5 U
METHYLENE CHLORIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
O-XYLENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
STYRENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-TETRACHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TETRACHLOROETHENE	0.5 U	28	58	48	68	19
TOLUENE	0.5 U	0.18 J	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	5.7	6.6	20 J	15 J	83	5
1,1,2-TRICHLOROETHANE	0.5 U	0.5 U	0.2 J	0.5 U	0.35 J	0.5 U
1,1,1-TRICHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.8
TRICHLOROETHENE	210 J	580 J	1400 J	2100 J	1700	710 J
VINYL CHLORIDE	0.5 U	1.3	1.6	1.4	0.5 U	0.57
<b>Anions (EPA Method 300.0) (µg/L)</b>						
CHLORIDE	34800	33400	35200	34800	35600	42400
NITRATE (AS N)	2540	2540	6570	5390	2820	6490
NITRITE (AS N)	100 U	100 U	100 U	100 U	100 U	1240
SULFATE	255000	256000	251000	250000	94900	238000
<b>Total Alkalinity (EPA Method 310.1) (mg/L)</b>						
BICARBONATE (AS CaCO <sub>3</sub> )	400	356	336	333	222	426
CARBONATE (AS CaCO <sub>3</sub> )	5 U	5 U	5 U	5 U	5 U	5 U
<b>Cations (EPA Method 6010B) (mg/L)</b>						
CALCIUM	416	219	678 J	273 J	241	370
IRON	76.9	28.6	13.5	17	57.9	21.8 J
MAGNESIUM	96.4 J	72.5 J	125 J	73.7 J	97.7	110
POTASSIUM	13.7	5.3	6.6	4.5 J	13.6	7
SODIUM	45.3	43	46.1	43.2	43.3	46

## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 4-I

**DIRECT PUSH TECHNOLOGY GROUNDWATER SAMPLE RESULTS**  
**FORMER NAS MOFFETT FIELD**  
**MOFFETT FIELD, CA**

Sample Number	86-WOPT-1018	86-WOPT-1019 (FO)	86-WOPT-1020	86-WOPT-1021	86-WOPT-516	86-WOPT-517
Sample Location	CPT-88-9	CPT-88-9	CPT-88-9	CPT-88-9	CPT-88-10	CPT-88-10
Sample Date	4/13/2005	4/13/2005	4/13/2005	4/13/2005	4/13/2005	4/13/2005
Sample Depth (feet bgs)	18.5-20.5	18.5-20.5	22-24	42-44	10-12	17-19
<b>Analyte</b>						
<i>1OCs (EPA Method 8260B) (µg/L)</i>						
ACETONE	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	1 J
BENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BROMODICHLOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BROMOFORM	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BROMOMETHANE	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ
2-BUTANONE	5 U	5 U	5 U	5 U	5 U	5 U
CARBON DISULFIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CARBON TETRACHLORIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CHLOROBENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CHLOROETHANE	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ
CHLOROFORM	0.59	0.71	0.72	0.44 J	0.19 J	0.2 J
CHLOROMETHANE	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U
DIBROMOCHLOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-DICHLOROETHANE	5.5	6.7	5.4	20	19	7.6
1,2-DICHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-DICHLOROETHENE	7	12	8.9	43	24	15
CIS-1,2-DICHLOROETHENE	190 J	210 J	170 J	340 J	340 J	720 J
TRANS-1,2-DICHLOROETHENE	5	2.5	2.3	3.1	3.8	8.7
1,2-DICHLOROPROPANE	0.5 U	0.5 U	0.5 U	0.5 U	2.4	0.5 U
CIS-1,3-DICHLOROPROPENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TRANS-1,3-DICHLOROPROPENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
ETHYL BENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-HEXANONE	5 U	5 U	5 U	5 U	5 U	5 U
M,P-XYLENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
METHYL TERT-BUTYL ETHER	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
4-METHYL-2-PENTANONE	5 U	5 U	5 U	5 U	5 U	5 U
METHYLENE CHLORIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
O-XYLENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
STYRENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-TETRACHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TETRACHLOROETHENE	2.6	3	2.1	0.77	65	56
TOLUENE	0.5 U	0.5 U	0.18 J	0.23 J	0.5 U	0.5 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	5.7	7.1	5.4	45	1.6	3.2
1,1,2-TRICHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,1-TRICHLOROETHANE	2.2	2.9	2.6	1.9	0.23 J	0.97
TRICHLOROETHENE	650 J	740 J	590 J	1300 J	780 J	510 J
VINYL CHLORIDE	0.61	0.76	0.62	1.4	0.84	0.88
<b>Anions (EPA Method 300.0) (µg/L)</b>						
CHLORIDE	41400	40900	42500	41200	43800	43200
NITRATE (AS N)	1340 J	13300 J	13800 J	7610	2210 J	6580 J
NITRITE (AS N)	1000 J	100 U	1020	100 U	100 UJ	100 UJ
SULFATE	214000	213000 J	220000 J	358000	462000	244000
<b>Total Alkalinity (EPA Method 310.1) (mg/L)</b>						
BICARBONATE (AS CaCO <sub>3</sub> )	414	416	432	333	403	444
CARBONATE (AS CaCO <sub>3</sub> )	5 U	5 U	5 U	5 U	5 U	5 U
<b>Cations (EPA Method 6010B) (mg/L)</b>						
CALCIUM	378	309	596	431	398	471
BROM	18.9 J	21.3 J	17.7 J	26.3 J	26.1 J	65 J
MAGNESIUM	117	97.6	144	99.8	119	89.5
POTASSIUM	5.4	6	12.2	9.8	8.8	4.9 J
SODIUM	42.7	41.5	48.4	43.9	45.7	40.6

## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 4-I

**DIRECT PUSH TECHNOLOGY GROUNDWATER SAMPLE RESULTS**  
**FORMER NAS MOFFETT FIELD**  
**MOFFETT FIELD, CA**

Sample Number	86-WOPT-518	86-WOPT-519 (FD)	86-WOPT-520	86-WOPT-521	86-WOPT-592	86-WOPT-593
Sample Location	CPT-88-10	CPT-88-10	CPT-88-10	CPT-88-10	CPT-88-11	CPT-88-11
Sample Date	4/13/2005	4/13/2005	4/13/2005	4/13/2005	4/21/2005	4/21/2005
Sample Depth (feet bgs)	23-25	23-25	43-45	47-49	10-13	18-20
<b>Analyte</b>						
<i>1OCs (EPA Method 8260B) (µg/L)</i>						
ACETONE	5 UJ	5 UJ	5 UJ	5 UJ	5 U	5 U
BENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BROMODICHLOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BROMOFORM	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BROMOMETHANE	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U
2-BUTANONE	5 U	5 U	5 U	5 U	5 U	5 U
CARBON DISULFIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CARBON TETRACHLORIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CHLOROBENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CHLOROETHANE	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U
CHLOROFORM	0.2 J	0.21 J	0.31 J	0.34 J	0.56	0.25 J
CHLOROMETHANE	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 U	0.5 U
DIBROMOCHLOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-DICHLOROETHANE	8	8.1	18	12	11	14
1,2-DICHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.3
1,1-DICHLOROETHENE	17	17	37	34	8.5	22
CIS-1,2-DICHLOROETHENE	890 J	890 J	450 J	160 J	260	480
TRANS-1,2-DICHLOROETHENE	30	30	2.3	1.5	1.8	2.9
1,2-DICHLOROPROPANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CIS-1,3-DICHLOROPROPENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TRANS-1,3-DICHLOROPROPENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
ETHYL BENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-HEXANONE	5 U	5 U	5 U	5 U	5 UJ	5 UJ
M,P-XYLENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
METHYL TERT-BUTYL ETHER	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.2
4-METHYL-2-PENTANONE	5 U	5 U	5 U	5 U	5 U	5 U
METHYLENE CHLORIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
O-XYLENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
STYRENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-TETRACHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TETRACHLOROETHENE	33	34	2.8	1.5	0.5 U	7.1
TOLUENE	0.5 U	0.5 U	0.2 J	0.5 U	0.5 U	0.5 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	3.4	3.6	30	61	1.6	25
1,1,2-TRICHLOROETHANE	0.5 U	0.5 U	0.31 J	0.47 J	0.5 U	0.5 U
1,1,1-TRICHLOROETHANE	1.2	1.1	1.2	1.5	0.5 U	0.91
TRICHLOROETHENE	650 J	590 J	1300 J	1900	82	1100
VINYL CHLORIDE	1.7	1.2	0.5 U	0.57	0.64	1.6
<i>Anions (EPA Method 300.0) (µg/L)</i>						
CHLORIDE	43300	43300	41500	40100	20200	39200
NITRATE (AS N)	3950 J	4440	5550	5890	14900	8080 J
NITRITE (AS N)	100 UJ	100 U	100 U	100 U	788	100 U
SULFATE	260000	260000	359000	331000	213000 J	246000 J
<i>Total Alkalinity (EPA Method 310.1) (mg/L)</i>						
BICARBONATE (AS CaCO <sub>3</sub> )	440	443	341	323	382	374
CARBONATE (AS CaCO <sub>3</sub> )	5 U	5 U	5 U	5 U	5 U	5 U
<i>Cations (EPA Method 6010B) (mg/L)</i>						
CALCIUM	408	361	489	788	500 J	491 J
IRON	29.1 J	18.3 J	19.7 J	12.5 J	28.2 J	4.6 J
MAGNESIUM	109	93.4	96	125	140 J	89.5 J
POTASSIUM	6.6	5.5	7.8	9.2	9.2 J	14.7 J
SODIUM	43.9	42.5	41.5	43.1	47.7	48.7

## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 4-I

**DIRECT PUSH TECHNOLOGY GROUNDWATER SAMPLE RESULTS**  
**FORMER NAS MOFFETT FIELD**  
**MOFFETT FIELD, CA**

Sample Number	86-WOPT-594 (F0)	86-WOPT-595	86-WOPT-596	86-WOPT-1066	86-WOPT-1067	86-WOPT-1068
Sample Location	CPT-88-11	CPT-88-11	CPT-88-11	CPT-88-12	CPT-88-12	CPT-88-12
Sample Date	4/21/2005	4/21/2005	4/21/2005	4/18/2005	4/18/2005	4/18/2005
Sample Depth (feet bgs)	18-20	31-33	45-47	17-19	24-26	31-33
<b>Analyte</b>						
<i>1,0Cs (EPA Method 8260B) (µg/L)</i>						
ACETONE	5 U	5 U	5 U	5 U	5 U	5 U
BENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BROMODICHLOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BROMOFORM	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U
BROMOMETHANE	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ
2-BUTANONE	5 U	5 U	5 U	5 U	5 U	5 U
CARBON DISULFIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CARBON TETRACHLORIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CHLOROBENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CHLOROETHANE	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U
CHLOROFORM	0.26 J	0.33 J	0.43 J	0.32 J	0.5 U	0.23 J
CHLOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
DIBROMOCHLOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-DICHLOROETHANE	14	20	19	43	23	24
1,2-DICHLOROETHANE	1.3	0.5 U	0.5 U	0.63	1.9	0.93
1,1-DICHLOROETHENE	21	32	40	18	34	50
CIS-1,2-DICHLOROETHENE	480	420 J	360 J	680 J	980 J	1100
TRANS-1,2-DICHLOROETHENE	2.9	2.6	1.6	6.1	6.3	11
1,2-DICHLOROPROPANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CIS-1,3-DICHLOROPROPENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TRANS-1,3-DICHLOROPROPENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
ETHYL BENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-HEXANONE	5 UJ	5 UJ	5 UJ	5 U	5 U	5 U
M,P-XYLENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
METHYL TERT-BUTYL ETHER	1.2	0.45 J	0.5 U	0.5 U	0.5 U	0.5 U
4-METHYL-2-PENTANONE	5 U	5 U	5 U	5 U	5 U	5 U
METHYLENE CHLORIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
O-XYLENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
STYRENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-TETRACHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TETRACHLOROETHENE	7.3	8.1	2.7	180 J	26	57
TOLUENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.26 J
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	25	36	56 J	7.2	10	35
1,1,2-TRICHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,1-TRICHLOROETHANE	0.91	1	1.2	0.5 U	0.5 U	0.61
TRICHLOROETHENE	1100	1200	1400 J	350 J	280 J	1100
VINYL CHLORIDE	1.5	1.8	0.98	6.9	9.3	11
<b>Anions (EPA Method 300.0) (µg/L)</b>						
CHLORIDE	39300	37700	37100	33800	36800	41000
NITRATE (AS N)	11100 J	4310	4460	4140 J	3350 J	4170 J
NITRITE (AS N)	100 U	100 U	100 U	100 UJ	100 UJ	100 UJ
SULFATE	227000 J	244000 J	233000 J	183000	215000	256000
<b>Total Alkalinity (EPA Method 310.1) (mg/L)</b>						
BICARBONATE (AS CaCO <sub>3</sub> )	369	362	331	438	350	326
CARBONATE (AS CaCO <sub>3</sub> )	5 U	5 U	5 U	5 U	5 U	5 U
<b>Cations (EPA Method 6010B) (mg/L)</b>						
CALCIUM	318 J	401	463 J	206	482	537
IRON	14.8 J	8.7 J	7.4 J	19.1	19.7	14.7
MAGNESIUM	75.7 J	72.4 J	118 J	88	89.1	91.7
POTASSIUM	14.4 J	14.4 J	8 J	3.5 J	11.8	9.1
SODIUM	49.1	48.3	45.1	43.1	49	51.1



## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 4-I

**DIRECT PUSH TECHNOLOGY GROUNDWATER SAMPLE RESULTS**  
**FORMER NAS MOFFETT FIELD**  
**MOFFETT FIELD, CA**

Sample Number	86-WOPT-1069	86-WOPT-570	86-WOPT-571	86-WOPT-572 (FD)	86-WOPT-573	86-WOPT-574
Sample Location	CPT-88-12	CPT-88-13	CPT-88-13	CPT-88-13	CPT-88-13	CPT-88-13
Sample Date	4/18/2005	4/19/2005	4/19/2005	4/19/2005	4/19/2005	4/19/2005
Sample Depth (feet bgs)	54-56	14.5-16.5	17-19	17-19	29-31	39-41
<b>Analyte</b>						
<i>1OCs (EPA Method 8260B) (µg/L)</i>						
ACETONE	5 U	5 U	5 U	5 U	5 U	5 U
BENZENE	0.5 U	0.5 U	0.5 U	0.5 U	<b>0.23 J</b>	0.5 U
BROMODICHLOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BROMOFORM	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BROMOMETHANE	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ
2-BUTANONE	5 U	5 U	5 U	5 U	5 U	5 U
CARBON DISULFIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CARBON TETRACHLORIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CHLOROBENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CHLOROETHANE	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U
CHLOROFORM	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	<b>0.52</b>
CHLOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
DIBROMOCHLOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-DICHLOROETHANE	0.5 U	<b>21</b>	<b>13</b>	<b>14</b>	<b>8.9</b>	<b>6</b>
1,2-DICHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-DICHLOROETHENE	0.5 U	<b>50</b>	<b>31</b>	<b>36</b>	<b>20</b>	<b>11</b>
CIS-1,2-DICHLOROETHENE	<b>11</b>	<b>11000</b>	<b>3800</b>	<b>3600</b>	<b>250 J</b>	<b>130 J</b>
TRANS-1,2-DICHLOROETHENE	0.5 U	<b>78</b>	<b>26</b>	<b>28</b>	<b>1.4</b>	<b>1.1</b>
1,2-DICHLOROPROPANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CIS-1,3-DICHLOROPROPENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TRANS-1,3-DICHLOROPROPENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
ETHYL BENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-HEXANONE	5 U	5 UJ	5 UJ	5 UJ	5 UJ	5 U
M,P-XYLENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
METHYL TERT-BUTYL ETHER	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
4-METHYL-2-PENTANONE	5 U	5 U	5 U	5 U	5 U	5 U
METHYLENE CHLORIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
O-XYLENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
STYRENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-TETRACHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TETRACHLOROETHENE	<b>1</b>	<b>9200</b>	<b>15000</b>	<b>15000</b>	<b>2000</b>	<b>4500</b>
TOLUENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	0.5 U	<b>0.23 J</b>	<b>5.1</b>	<b>5.1</b>	<b>9.1</b>	<b>5.9</b>
1,1,2-TRICHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,1-TRICHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	<b>1.1</b>	0.5 U
TRICHLOROETHENE	<b>6.3</b>	<b>2400</b>	<b>1800</b>	<b>1900</b>	<b>530 J</b>	<b>460 J</b>
VINYL CHLORIDE	0.5 U	<b>6.4</b>	<b>3.7</b>	<b>4.1</b>	<b>0.42 J</b>	<b>0.51</b>
<b>Anions (EPA Method 300.0) (µg/L)</b>						
CHLORIDE	<b>19500</b>	<b>59900</b>	<b>48700</b>	<b>48100</b>	<b>41100</b>	<b>36100</b>
NITRATE (AS N)	<b>3230 J</b>	<b>2430 J</b>	<b>2620 J</b>	<b>2550 J</b>	<b>4380 J</b>	<b>2570 J</b>
NITRITE (AS N)	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ
SULFATE	<b>38500</b>	<b>476000 J</b>	<b>497000 J</b>	<b>485000 J</b>	<b>422000 J</b>	<b>292000 J</b>
<b>Total Alkalinity (EPA Method 310.1) (mg/L)</b>						
BICARBONATE (AS CaCO <sub>3</sub> )	<b>237</b>	<b>330</b>	<b>328</b>	<b>331</b>	<b>326</b>	<b>260</b>
CARBONATE (AS CaCO <sub>3</sub> )	5 U	5 U	5 U	5 U	5 U	5 U
<b>Cations (EPA Method 6010B) (mg/L)</b>						
CALCIUM	<b>356</b>	<b>390</b>	<b>510</b>	<b>537</b>	<b>278</b>	<b>401</b>
IRON	<b>24.1</b>	<b>37.3 J</b>	<b>28.1 J</b>	<b>17.3 J</b>	<b>13.5 J</b>	<b>10.9 J</b>
MAGNESIUM	<b>67.2</b>	<b>94.6</b>	<b>113</b>	<b>98.9</b>	<b>75.8</b>	<b>65.5</b>
POTASSIUM	<b>9.2</b>	<b>7.4</b>	<b>15.5</b>	<b>16.1</b>	<b>5.7</b>	<b>7.8</b>
SODIUM	<b>49.4</b>	<b>43.8</b>	<b>45.8</b>	<b>45.6</b>	<b>42.1</b>	<b>41.7</b>

## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 4-I

**DIRECT PUSH TECHNOLOGY GROUNDWATER SAMPLE RESULTS  
FORMER NAS MOFFETT FIELD  
MOFFETT FIELD, CA**

Sample Number	86-WOPT-575	86-WOPT-1077	86-WOPT-1078	86-WOPT-1079	86-WOPT-1080 (FD)	86-WOPT-1081
Sample Location	CPT-88-13	CPT-88-14	CPT-88-14	CPT-88-14	CPT-88-14	CPT-88-14
Sample Date	4/19/2005	4/19/2005	4/19/2005	4/19/2005	4/19/2005	4/19/2005
Sample Depth (feet bgs)	57-60	10-12	17-19	32-34	32-34	37.5-39.5
<b>Analyte</b>						
<i>17OCs (EPA Method 8260B) (µg/L)</i>						
ACETONE	5 U	5 U	5 U	5 U	5 U	5 U
BENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BROMODICHLOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BROMOFORM	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BROMOMETHANE	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ
2-BUTANONE	5 U	5 U	5 U	5 U	5 U	5 U
CARBON DISULFIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CARBON TETRACHLORIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CHLOROBENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CHLOROETHANE	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ
CHLOROFORM	0.5 U	0.42 J	0.5 U	0.48 J	0.39 J	0.26 J
CHLOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
DIBROMOCHLOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-DICHLOROETHANE	0.29 J	72	10	15	13	6.6
1,2-DICHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-DICHLOROETHENE	4	67	24	37	29	13
CIS-1,2-DICHLOROETHENE	9.5	1000 J	3300	410 J	360 J	220 J
TRANS-1,2-DICHLOROETHENE	0.19 J	4.2	12	2.2	1.7	1
1,2-DICHLOROPROPANE	0.5 U	0.63	0.5 U	0.5 U	0.5 U	0.5 U
CIS-1,3-DICHLOROPROPENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TRANS-1,3-DICHLOROPROPENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
ETHYL BENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-HEXANONE	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 U
M,P-XYLENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
METHYL TERT-BUTYL ETHER	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
4-METHYL-2-PENTANONE	5 U	5 U	5 U	5 U	5 U	5 U
METHYLENE CHLORIDE	0.42 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
O-XYLENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
STYRENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-TETRACHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TETRACHLOROETHENE	2000	16 J	3.6 J	10 J	9.2 J	4.7 J
TOLUENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	150 J	1.8	0.5 U	41 J	30 J	20
1,1,2-TRICHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,1-TRICHLOROETHANE	0.5 U	0.5 U	0.5 U	1.8	1.6	0.5 U
TRICHLOROETHENE	1100 J	260 J	8.6	1400 J	1200 J	940 J
VINYL CHLORIDE	0.5 U	3.8	1	1.1	0.84	0.29 J
<b>Anions (EPA Method 300.0) (µg/L)</b>						
CHLORIDE	25200	41600	N/A	41890	41900	N/A
NITRATE (AS N)	2650 J	5220	N/A	8190 J	8700 J	N/A
NITRITE (AS N)	100 UJ	100 U	N/A	100 UJ	100 UJ	N/A
SULFATE	91900 J	394000 J	N/A	648000 J	307000 J	N/A
<b>Total Alkalinity (EPA Method 310.1) (mg/L)</b>						
BICARBONATE (AS CaCO <sub>3</sub> )	230	366	N/A	376	369	N/A
CARBONATE (AS CaCO <sub>3</sub> )	5 U	5 U	N/A	5 U	5 U	N/A
<b>Cations (EPA Method 6010B) (mg/L)</b>						
CALCIUM	284	552	N/A	424	414	N/A
IRON	12 J	19.3 J	N/A	22.9 J	23.1 J	N/A
MAGNESIUM	53.9	127	N/A	132	128	N/A
POTASSIUM	10.5	12	N/A	11.2	11.8	N/A
SODIUM	45	58.1	N/A	45.1	47.2	N/A

## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 4-I

**DIRECT PUSH TECHNOLOGY GROUNDWATER SAMPLE RESULTS**  
**FORMER NAS MOFFETT FIELD**  
**MOFFETT FIELD, CA**

Sample Number	86-WOPT-1082	86-WOPT-1083	86-WOPT-577	86-WOPT-578	86-WOPT-579	86-WOPT-580
Sample Location	CPT-88-14	CPT-88-14	CPT-88-15	CPT-88-15	CPT-88-15	CPT-88-15
Sample Date	4/19/2005	4/19/2005	4/20/2005	4/20/2005	4/20/2005	4/20/2005
Sample Depth (feet bgs)	42-44	45.5-47.5	10-12	16-19	36-38	44-46
<b>Analyte</b>						
<i>1,1,1-Trichloroethene (EPA Method 8260B) (µg/L)</i>						
ACETONE	5 U	18	5 U	5 U	5 U	5 U
BENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BROMODICHLOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BROMOFORM	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BROMOMETHANE	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ
2-BUTANONE	5 U	5 U	5 U	5 U	5 U	5 U
CARBON DISULFIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CARBON TETRACHLORIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CHLOROBENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CHLOROFORM	0.83	1.4	0.5 U	0.5 U	0.51	0.36 J
CHLOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
DIBROMOCHLOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-DICHLOROETHANE	17	22	7.6	72	11	7.8
1,2-DICHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-DICHLOROETHENE	65	120 J	2.2	160 J	21	33
CIS-1,2-DICHLOROETHENE	240 J	220 J	120	2900	300 J	100
TRANS-1,2-DICHLOROETHENE	1.8	2.7	0.97	18	1.4	1.4
1,2-DICHLOROPROPANE	0.5 U	1.9	0.5 U	1.5	0.55	0.5 U
CIS-1,3-DICHLOROPROPENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TRANS-1,3-DICHLOROPROPENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
ETHYL BENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-HEXANONE	5 U	5 U	5 U	5 U	5 U	5 U
M,P-XYLENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
METHYL TERT-BUTYL ETHER	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
4-METHYL-2-PENTANONE	5 U	5 U	5 U	5 U	5 U	5 U
METHYLENE CHLORIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
O-XYLENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
STYRENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-TETRACHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TETRACHLOROETHENE	39 J	62 J	39	0.5 U	1100	34
TOLUENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	150 J	440 J	0.5 U	0.5 U	18	100 J
1,1,2-TRICHLOROETHANE	0.82	1.7	0.5 U	0.5 U	0.39 J	0.43 J
1,1,1-TRICHLOROETHANE	0.65	0.37 J	0.5 U	0.5 U	0.76	1.8
TRICHLOROETHENE	5000	10000	33	7.7	2000	2500
VINYL CHLORIDE	0.67	0.53	6.6	34	0.86	0.5 U
<b>Anions (EPA Method 300.0) (µg/L)</b>						
CHLORIDE	42300	42300	47400	52300	43300	39500
NITRATE (AS N)	11700	7930 J	2530	2340	8010	8850
NITRITE (AS N)	100 U	100 UJ	100 U	100 U	900	100 U
SULFATE	263000 J	197000 J	289000 J	268000 J	283000 J	185000 J
<b>Total Alkalinity (EPA Method 310.1) (mg/L)</b>						
BICARBONATE (AS CaCO <sub>3</sub> )	322	254	274	288	280	284
CARBONATE (AS CaCO <sub>3</sub> )	5 U	5 U	5 U	5 U	5 U	5 U
<b>Cations (EPA Method 6010B) (mg/L)</b>						
CALCIUM	194	312	394	445	751	346
IRON	8.1 J	21.9 J	47	95.3	133	49.2
MAGNESIUM	57.9	85.7	115 J	72.1 J	195	163 J
POTASSIUM	7.2	11.1	8.3	3.8 J	39.5	12.7
SODIUM	40.3	42.6	61.8	55.7	65.3	42.9

## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 4-I

**DIRECT PUSH TECHNOLOGY GROUNDWATER SAMPLE RESULTS**  
**FORMER NAS MOFFETT FIELD**  
**MOFFETT FIELD, CA**

Sample Number	86-WOPT-581	86-WOPT-582	86-WOPT-1092	86-WOPT-1093	86-WOPT-1094 (FD)	86-WOPT-1095
Sample Location	CPT-88-15	CPT-88-15	CPT-88-16	CPT-88-16	CPT-88-16	CPT-88-16
Sample Date	4/26/2005	4/26/2005	4/26/2005	4/26/2005	4/26/2005	4/26/2005
Sample Depth (feet bgs)	49-52	56-59	8-10	13-15	13-15	22-24
<b>Analyte</b>						
<i>1 OCs (EPA Method 8260B) (µg/L)</i>						
ACETONE	5 U	5 U	5 U	5 U	5 U	5 U
BENZENE	0.5 U	0.5 U	20	0.5 U	0.5 U	0.5 U
BROMODICHLOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BROMOFORM	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BROMOMETHANE	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ
2-BUTANONE	5 U	5 U	5 U	5 U	5 U	5 U
CARBON DISULFIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CARBON TETRACHLORIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CHLOROBENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CHLOROFORM	0.42 J	1.4	0.5 U	0.5 U	0.5 U	0.5 U
CHLOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
DIBROMOCHLOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-DICHLOROETHANE	7.7	6.2	9.4	3.8	3.2	25
1,2-DICHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-DICHLOROETHENE	36	35	2.2	0.5 U	0.5 U	73
CIS-1,2-DICHLOROETHENE	91	33	72	0.17 J	0.5 U	730
TRANS-1,2-DICHLOROETHENE	0.93	0.36 J	1.7	0.5 U	0.5 U	1.8
1,2-DICHLOROPROPANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CIS-1,3-DICHLOROPROPENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TRANS-1,3-DICHLOROPROPENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
ETHYL BENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-HEXANONE	5 U	5 U	5 U	5 U	5 U	5 U
M,P-XYLENE	0.5 U	0.5 U	0.19 J	0.5 U	0.5 U	0.5 U
METHYL TERT-BUTYL ETHER	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
4-METHYL-2-PENTANONE	5 U	5 U	5 U	5 U	5 U	5 U
METHYLENE CHLORIDE	0.5 U	0.69	0.5 U	0.5 U	0.5 U	0.5 U
O-XYLENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
STYRENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-TETRACHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TETRACHLOROETHENE	1300 J	2100 J	0.5 U	0.5 U	0.5 U	0.5 U
TOLUENE	0.5 U	0.5 U	0.35 J	0.5 U	0.5 U	0.5 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	130 J	190 J	0.5 U	0.5 U	0.5 U	0.34 J
1,1,2-TRICHLOROETHANE	0.52	1	0.5 U	0.5 U	0.5 U	0.5 U
1,1,1-TRICHLOROETHANE	1.6	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TRICHLOROETHENE	3000	1600 J	0.5 U	0.5 U	0.5 U	33
VINYL CHLORIDE	0.61	0.5 U	62	0.5 U	0.46 J	1.1
<i>Anions (EPA Method 300.0) (µg/L)</i>						
CHLORIDE	39400	40000	28200	41600	42200	42500
NITRATE (AS N)	11000	3500	2410	2430	2410	2590
NITRITE (AS N)	100 U	926	100 U	100 U	100 U	100 U
SULFATE	2E+05 J	183000 J	125000 J	411000 J	411000 J	363000 J
<i>Total Alkalinity (EPA Method 310.1) (mg/L)</i>						
BICARBONATE (AS CaCO <sub>3</sub> )	271	91.2	681	334	332	283
CARBONATE (AS CaCO <sub>3</sub> )	5 U	8.8	5 U	5 U	5 U	5 U
<i>Cations (EPA Method 6010B) (mg/L)</i>						
CALCIUM	457	199	533	259	242	536
IRON	15.1	12.9	78.6	39.5	33.7	235
MAGNESIUM	117 J	39.3 J	121	86.5 J	81.5 J	158
POTASSIUM	16.6	12.7	9.6	6.3	7.4	30.3
SODIUM	44.7	45.4	49.4	40.4	39.2	45.8

## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 4-I

**DIRECT PUSH TECHNOLOGY GROUNDWATER SAMPLE RESULTS**  
**FORMER NAS MOFFETT FIELD**  
**MOFFETT FIELD, CA**

Sample Number	86-WOPT-1096	86-WOPT-1097	86-WOPT-1098	86-WOPT-1107	86-WOPT-1108
Sample Location	CPT-88-16	CPT-88-16	CPT-88-16	CPT-88-17	CPT-88-17
Sample Date	4/20/2005	4/20/2005	4/20/2005	4/21/2005	4/21/2005
Sample Depth (feet bgs)	32-34	35-37	49-51	13-15	19-21
<b>Analyte</b>					
<i>1OCs (EPA Method 8260B) (µg/L)</i>					
ACETONE	5 U	5 U	5 U	5 U	5 U
BENZENE	0.5 U	0.5 U	0.5 U	0.46 J	0.5 U
BROMODICHLOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BROMOFORM	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ
BROMOMETHANE	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U
2-BUTANONE	5 U	5 U	5 U	5 U	5 U
CARBON DISULFIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CARBON TETRACHLORIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CHLOROBENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ
CHLOROFORM	0.42 J	0.25 J	0.5 U	0.5 U	0.5 U
CHLOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
DIBROMOCHLOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-DICHLOROETHANE	18	8.7	4.7	17	8.8
1,2-DICHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-DICHLOROETHENE	53	31	22	29	18
CIS-1,2-DICHLOROETHENE	270 J	120 J	18	1000 J	920 J
TRANS-1,2-DICHLOROETHENE	1.1	0.56	0.5 U	4.8	6.8
1,2-DICHLOROPROPANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CIS-1,3-DICHLOROPROPENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TRANS-1,3-DICHLOROPROPENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
ETHYL BENZENE	0.5 U	0.5 U	0.5 U	0.33 J	0.5 U
2-HEXANONE	5 U	5 U	5 U	5 UJ	5 UJ
M,P-XYLENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
METHYL TERT-BUTYL ETHER	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
4-METHYL-2-PENTANONE	5 U	5 U	5 U	5 U	5 U
METHYLENE CHLORIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
O-XYLENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
STYRENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-TETRACHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TETRACHLOROETHENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TOLUENE	0.5 U	0.5 U	0.5 U	0.17 J	0.5 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	41	25	9.5	0.5 U	0.82
1,1,2-TRICHLOROETHANE	0.27 J	0.5 U	0.5 U	0.5 U	0.5 U
1,1,1-TRICHLOROETHANE	0.91	0.65	1.1	0.5 U	0.5 U
TRICHLOROETHENE	980 J	620 J	43	9.8	160 J
VINYL CHLORIDE	0.7	0.5 U	0.5 U	1.2	1.2
<i>Anions (EPA Method 300.0) (µg/L)</i>					
CHLORIDE	39100	35600	31200	N/A	41300
NITRATE (AS N)	3290	2610	4520	N/A	2390
NITRITE (AS N)	100 U	100 U	100 U	N/A	100 U
SULFATE	314000 J	213000 J	172000 J	N/A	509000 J
<i>Total Alkalinity (EPA Method 310.1) (mg/L)</i>					
BICARBONATE (AS CaCO <sub>3</sub> )	275	240	226	N/A	388
CARBONATE (AS CaCO <sub>3</sub> )	5 U	5 U	5 U	N/A	5 U
<i>Cations (EPA Method 6010B) (mg/L)</i>					
CALCIUM	490	198	385	N/A	312 J
IRON	10.3	35.8	12.5	N/A	16.3 J
MAGNESIUM	85.3 J	83 J	89.3 J	N/A	98 J
POTASSIUM	7.4	12.2	10.9	N/A	13.5 J
SODIUM	40.4	37.4	40.5	N/A	41.5

## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 4-I

**DIRECT PUSH TECHNOLOGY GROUNDWATER SAMPLE RESULTS**  
**FORMER NAS MOFFETT FIELD**  
**MOFFETT FIELD, CA**

Sample Number	86-WOPT-1109	86-WOPT-1110	86-WOPT-1111	86-WOPT-1120	86-WOPT-1121	86-WOPT-1122 (FD)
Sample Location	CPT-88-17	CPT-88-17	CPT-88-17	CPT-88-18	CPT-88-18	CPT-88-18
Sample Date	4/21/2005	4/21/2005	4/21/2005	4/22/2005	4/22/2005	4/22/2005
Sample Depth (feet bgs)	32-34	49-52	56-58	8-10	14-16	14-16
<b>Analyte</b>						
<i>FOCs (EPA Method 8260B) (µg/L)</i>						
ACETONE	5 U	5 U	5.1	5 UJ	5 UJ	5 UJ
BENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BROMODICHLOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BROMOFORM	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ
BROMOMETHANE	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ
2-BUTANONE	5 U	5 U	5 U	5 U	5 U	5 U
CARBON DISULFIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CARBON TETRACHLORIDE	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ
CHLOROBENZENE	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ
CHLOROETHANE	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ
CHLOROFORM	0.5 U	0.5 U	0.5 U	0.5 U	0.24 J	0.27 J
CHLOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
DIBROMOCHLOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-DICHLOROETHANE	8.9	0.33 J	0.5 U	4.4	3.7	4
1,2-DICHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-DICHLOROETHENE	14 J	0.33 J	0.5 U	4.9 J	4.4 J	5.1 J
CIS-1,2-DICHLOROETHENE	250	7.5	1.8	230	52	58
TRANS-1,2-DICHLOROETHENE	0.85	0.5 U	0.5 U	0.65	0.88	0.92
1,2-DICHLOROPROPANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CIS-1,3-DICHLOROPROPENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TRANS-1,3-DICHLOROPROPENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
ETHYL BENZENE	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ
2-HEXANONE	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 U
M,P-XYLENE	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ
METHYL TERT-BUTYL ETHER	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
4-METHYL-2-PENTANONE	5 U	5 U	5 U	5 U	5 U	5 U
METHYLENE CHLORIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
O-XYLENE	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ
STYRENE	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ
1,1,2,2-TETRACHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TETRACHLOROETHENE	0.5 U	0.5 U	0.5 U	0.5 U	0.28 J	0.3 J
TOLUENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	4.2	0.5 U	0.5 U	0.5 U	2.5	2.9
1,1,2-TRICHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,1-TRICHLOROETHANE	1.1	0.5 U	0.5 U	0.5 U	2.4	2.7
TRICHLOROETHENE	260	6.9	0.45 J	53 J	270	270
VINYL CHLORIDE	0.47 J	0.5 U	0.5 U	0.29 J	0.59	0.63
<i>Anions (EPA Method 300.0) (µg/L)</i>						
CHLORIDE	41700	N/A	N/A	39300	35600	35600
NITRATE (AS N)	5740	N/A	N/A	4160	7530	7730
NITRITE (AS N)	100 U	N/A	N/A	100 U	100 U	100 U
SULFATE	417000 J	N/A	N/A	497000	459000 J	459000 J
<i>Total Alkalinity (EPA Method 310.1) (mg/L)</i>						
BICARBONATE (AS CaCO <sub>3</sub> )	339	N/A	N/A	388	361	363
CARBONATE (AS CaCO <sub>3</sub> )	5 U	N/A	N/A	5 U	5 U	5 U
<i>Cations (EPA Method 6010B) (mg/L)</i>						
CALCIUM	283 J	N/A	N/A	1060	458	441
IRON	93.6 J	N/A	N/A	177 J	12.1 J	12.9 J
MAGNESIUM	156 J	N/A	N/A	263	110	98.5
POTASSIUM	9.3 J	N/A	N/A	8.3 J	8 J	8.7 J
SODIUM	39.3	N/A	N/A	59.5 J	44.1 J	43.6 J

## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 4-I

**DIRECT PUSH TECHNOLOGY GROUNDWATER SAMPLE RESULTS**  
**FORMER NAS MOFFETT FIELD**  
**MOFFETT FIELD, CA**

Sample Number	86-WOPT-1123	86-WOPT-1124	86-WOPT-1125	86-WOPT-1126	86-WOPT-1127	86-WOPT-603
Sample Location	CPT-88-18	CPT-88-18	CPT-88-18	CPT-88-18	CPT-88-18	CPT-88-19
Sample Date	4/22/2005	4/22/2005	4/22/2005	4/22/2005	4/22/2005	4/22/2005
Sample Depth (feet bgs)	18-20	24-25	30-32	42-44	55-56	6-9
<b>Analyte</b>						
<i>FOCs (EPA Method 8260B) (µg/L)</i>						
ACETONE	5 U	5 UJ	5 UJ	5 UJ	5 UJ	1.3 J
BENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BROMODICHLOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BROMOFORM	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ
BROMOMETHANE	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ
2-BUTANONE	5 U	5 U	5 U	5 U	5 U	5 U
CARBON DISULFIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CARBON TETRACHLORIDE	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ
CHLOROBENZENE	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ
CHLOROETHANE	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ
CHLOROFORM	0.17 J	0.5 U	0.5 U	0.5 U	0.5 U	0.36 J
CHLOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
DIBROMOCHLOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-DICHLOROETHANE	4.7	3.5	5.4	0.5 U	0.5 U	8.3
1,2-DICHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-DICHLOROETHENE	6	5.3 J	8.6 J	0.5 U	0.5 U	5.5 J
CIS-1,2-DICHLOROETHENE	79	82	130	0.74	0.5 U	440 J
TRANS-1,2-DICHLOROETHENE	1.1	1.5	1.5	0.5 U	0.5 U	31
1,2-DICHLOROPROPANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CIS-1,3-DICHLOROPROPENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TRANS-1,3-DICHLOROPROPENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
ETHYL BENZENE	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ
2-HEXANONE	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
M,P-XYLENE	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ
METHYL TERT-BUTYL ETHER	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
4-METHYL-2-PENTANONE	5 U	5 U	5 U	5 U	5 U	5 U
METHYLENE CHLORIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
O-XYLENE	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ
STYRENE	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ
1,1,2,2-TETRACHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TETRACHLOROETHENE	0.39 J	0.22 J	1.5	3.1	0.5 U	830 J
TOLUENE	0.24 J	0.5 U	0.5 U	0.5 U	0.5 U	0.2 J
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	2.3	1.9	3.1	0.5 U	0.5 U	0.82
1,1,2-TRICHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,1-TRICHLOROETHANE	2.1	1.4	0.94	0.5 U	0.5 U	0.97
TRICHLOROETHENE	180 J	190	260	0.77 J	0.5 U	450 J
VINYL CHLORIDE	0.46 J	0.42 J	0.56	0.5 U	0.5 U	0.91
<i>Anions (EPA Method 300.0) (µg/L)</i>						
CHLORIDE	38500	40800	40500	32300	30700	32000
NITRATE (AS N)	7020	5890	4580	2970	2650	7400
NITRITE (AS N)	100 U	100 U	100 U	100 U	100 U	100 U
SULFATE	493000 J	474000 J	388000 J	185000 J	119000 J	368000 J
<i>Total Alkalinity (EPA Method 310.1) (mg/L)</i>						
BICARBONATE (AS CaCO <sub>3</sub> )	367	376	330	240	219	281
CARBONATE (AS CaCO <sub>3</sub> )	5 U	5 U	5 U	5 U	5 U	5 U
<i>Cations (EPA Method 6010B) (mg/L)</i>						
CALCIUM	825	1370	775	229	277	494
IRON	26.8 J	1.2 J	7.2 J	10.5 J	31.5 J	17.8 J
MAGNESIUM	169	139	142	50.7	64	145
POTASSIUM	13.3 J	7.2 J	10.8 J	4.4 J	7.3 J	8.6 J
SODIUM	48.1 J	47.7 J	46.1 J	37.6 J	43.4 J	48.7 J

## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 4-I

**DIRECT PUSH TECHNOLOGY GROUNDWATER SAMPLE RESULTS**  
**FORMER NAS MOFFETT FIELD**  
**MOFFETT FIELD, CA**

Sample Number	86-WOPT-604	86-WOPT-605	86-WOPT-606	86-WOPT-607	86-WOPT-608	86-WOPT-609 (FD)
Sample Location	CPT-88-19	CPT-88-19	CPT-88-19	CPT-88-19	CPT-88-19	CPT-88-19
Sample Date	4/22/2005	4/22/2005	4/22/2005	4/22/2005	4/22/2005	4/22/2005
Sample Depth (feet bgs)	11-13	18-20	22-24	27-30	47-50	47-50
<b>Analyte</b>						
<i>FOCs (EPA Method 8260B) (µg/L)</i>						
ACETONE	3 J	5 UJ	5 U	5 U	5 U	5 U
BENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BROMODICHLOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BROMOFORM	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
BROMOMETHANE	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
2-BUTANONE	5 U	5 U	5 U	5 U	5 U	5 U
CARBON DISULFIDE	0.5 U	0.5 U	0.21 J	0.5 U	0.5 U	0.5 U
CARBON TETRACHLORIDE	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
CHLOROBENZENE	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
CHLOROETHANE	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ
CHLOROFORM	0.5 U	0.5 U	0.5 U	0.5 U	0.27 J	0.27 J
CHLOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
DIBROMOCHLOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-DICHLOROETHANE	6.9	16	0.75	9.3	5.3	5.1
1,2-DICHLOROETHANE	5.3	1.2	0.5 U	0.5 U	0.5 U	0.5 U
1,1-DICHLOROETHENE	0.66 J	20 J	0.58	4.3	27	28
CIS-1,2-DICHLOROETHENE	330	500	71	56	53	52
TRANS-1,2-DICHLOROETHENE	23	3.4	35	0.67	0.56	0.44 J
1,2-DICHLOROPROPANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CIS-1,3-DICHLOROPROPENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TRANS-1,3-DICHLOROPROPENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
ETHYL BENZENE	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
2-HEXANONE	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
M,P-XYLENE	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
METHYL TERT-BUTYL ETHER	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
4-METHYL-2-PENTANONE	5 U	5 U	5 U	5 U	5 U	5 U
METHYLENE CHLORIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
O-XYLENE	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
STYRENE	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-TETRACHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TETRACHLOROETHENE	3.7	0.44 J	0.67	9.5	130 J	130 J
TOLUENE	0.5 U	0.5 U	0.18 J	0.5 U	0.5 U	0.5 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	0.5 U	0.5	0.5 U	1.7	70 J	70 J
1,1,2-TRICHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.24 J	0.5 U
1,1,1-TRICHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.78	0.8
TRICHLOROETHENE	22 J	14 J	6.8	13	1400	1200
VINYL CHLORIDE	0.5 U	1.1	0.36 J	0.27 J	0.5 U	0.5 U
<i>Anions (EPA Method 300.0) (µg/L)</i>						
CHLORIDE	39300	38700	36300	36000	33800	33900
NITRATE (AS N)	2720	2340	2370	5000	3800 J	3580
NITRITE (AS N)	100 U	100 U	100 U	100 U	100 R	100 U
SULFATE	400000 J	371000 J	310000 J	300000 J	205000 J	194000 J
<i>Total Alkalinity (EPA Method 310.1) (mg/L)</i>						
BICARBONATE (AS CaCO <sub>3</sub> )	293	289	234	249	239	241
CARBONATE (AS CaCO <sub>3</sub> )	5 U	5 U	5 U	5 U	5 U	5 U
<i>Cations (EPA Method 6010B) (mg/L)</i>						
CALCIUM	801	1050	758	342	268	289
IRON	639 J	140 J	227 J	62.6 J	17	12.1
MAGNESIUM	188	123	127	90	78	77.9
POTASSIUM	14.1 J	6.7 J	20.2 J	7.1 J	7.5 J	9.5 J
SODIUM	61.7 J	48.4 J	78.9 J	40.8 J	41.4 J	45.4 J



## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 4-I

**DIRECT PUSH TECHNOLOGY GROUNDWATER SAMPLE RESULTS**  
**FORMER NAS MOFFETT FIELD**  
**MOFFETT FIELD, CA**

Sample Number	86-WOPT-617	86-WOPT-618	86-WOPT-619	86-WOPT-620	86-WOPT-621 (FD)	86-WOPT-622
Sample Location	CPT-88-20	CPT-88-20	CPT-88-20	CPT-88-20	CPT-88-20	CPT-88-20
Sample Date	5/2/2005	5/2/2005	5/2/2005	5/2/2005	5/2/2005	5/2/2005
Sample Depth (feet bgs)	10-12	19-21	28-30	39-41	39-41	45-47
<b>Analyte</b>						
<i>FOCs (EPA Method 8260B) (µg/L)</i>						
ACETONE	5 U	5 U	5 U	5 U	5 U	5 U
BENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BROMODICHLOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BROMOFORM	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BROMOMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-BUTANONE	5 U	5 U	5 U	5 U	5 U	5 U
CARBON DISULFIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CARBON TETRACHLORIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CHLOROBENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CHLOROFORM	0.17 J	0.5 U	0.5 U	0.34 J	0.36 J	0.56
CHLOROMETHANE	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ
DIBROMOCHLOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-DICHLOROETHANE	8.2	7.2	14	19	18	7
1,2-DICHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-DICHLOROETHENE	5.1	15	2.1	40	39	29
CIS-1,2-DICHLOROETHENE	150	790	16	350	330	59
TRANS-1,2-DICHLOROETHENE	1.2	2.7	0.5 U	0.44 J	0.48 J	0.24 J
1,2-DICHLOROPROPANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CIS-1,3-DICHLOROPROPENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TRANS-1,3-DICHLOROPROPENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
ETHYL BENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-HEXANONE	5 U	5 U	5 U	5 U	5 U	5 U
M,P-XYLENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
METHYL TERT-BUTYL ETHER	1.1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
4-METHYL-2-PENTANONE	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
METHYLENE CHLORIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
O-XYLENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
STYRENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-TETRACHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TETRACHLOROETHENE	3.3	0.5 U	8	53	54	100
TOLUENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	0.71	0.5 U	4.7	46	43	94
1,1,2-TRICHLOROETHANE	0.5 U	0.5 U	0.5 U	0.26 J	0.5 U	0.5 U
1,1,1-TRICHLOROETHANE	0.24 J	0.5 U	0.5 U	0.21 J	0.22 J	0.74
TRICHLOROETHENE	260	2.1	4.9	28	27	810 J
VINYL CHLORIDE	0.78	2	1	2.2	2	0.75
<i>Anions (EPA Method 300.0) (µg/L)</i>						
CHLORIDE	28800	37400	34000	35800	35800	32800
NITRATE (AS N)	1100 J	200 U	1350 J	3110	3200	3090
NITRITE (AS N)	100 U	100 U	100 U	100 U	100 U	100 U
SULFATE	380000	324000	239000	263000	264000	186000
<i>Total Alkalinity (EPA Method 310.1) (mg/L)</i>						
BICARBONATE (AS CaCO <sub>3</sub> )	320	321	257	268	268	244
CARBONATE (AS CaCO <sub>3</sub> )	5 U	5 U	5 U	5 U	5 U	5 U
<i>Cations (EPA Method 6010B) (mg/L)</i>						
CALCIUM	458	424	244	483	466	162
IRON	22.1	65	11.2	23.3 J	12.1 J	8
MAGNESIUM	123 J	81.4 J	60.3 J	123 J	92.1 J	47.5 J
POTASSIUM	7.5 J	4.8 J	3 J	7.5 J	7.2 J	2.8 J
SODIUM	40.7 J	39.8 J	36.8 J	41.5 J	40.7 J	35.9 J

## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 4-I

**DIRECT PUSH TECHNOLOGY GROUNDWATER SAMPLE RESULTS**  
**FORMER NAS MOFFETT FIELD**  
**MOFFETT FIELD, CA**

Sample Number	86-WOPT-623	86-WOPT-632	86-WOPT-633	86-WOPT-634	86-WOPT-635 (FD)	86-WOPT-636
Sample Location	CPT-88-20	CPT-88-21	CPT-88-21	CPT-88-21	CPT-88-21	CPT-88-21
Sample Date	5/2/2005	5/3/2005	5/3/2005	5/3/2005	5/3/2005	5/3/2005
Sample Depth (feet bgs)	51-53	10-12	15-17	23-25	23-25	32-34
<b>Analyte</b>						
<i>FOCs (EPA Method 8260B) (µg/L)</i>						
ACETONE	5 U	14 U	7.9 U	13 U	9.7 U	6.8 U
BENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BROMODICHLOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BROMOFORM	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BROMOMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-BUTANONE	5 U	5 U	5 U	5 U	5 U	5 U
CARBON DISULFIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CARBON TETRACHLORIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CHLOROBENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CHLOROFORM	0.5	0.16 J	0.5 U	0.5 U	0.5 U	0.24 J
CHLOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
DIBROMOCHLOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-DICHLOROETHANE	1.3	14	0.5 U	6.7	6	14
1,2-DICHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-DICHLOROETHENE	14	9.2	0.5 U	14	11	20
CIS-1,2-DICHLOROETHENE	12	310 J	0.29 J	1300 J	1300	140 J
TRANS-1,2-DICHLOROETHENE	0.24 J	2.1	0.5 U	7.1	6	0.36 J
1,2-DICHLOROPROPANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CIS-1,3-DICHLOROPROPENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TRANS-1,3-DICHLOROPROPENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
ETHYL BENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-HEXANONE	5 U	5 U	5 U	5 U	5 U	5 U
M,P-XYLENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
METHYL TERT-BUTYL ETHER	0.5 U	0.58	0.5 U	0.5 U	0.5 U	0.5 U
4-METHYL-2-PENTANONE	5 U	5 U	5 U	5 U	5 U	5 U
METHYLENE CHLORIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
O-XYLENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
STYRENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-TETRACHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TETRACHLOROETHENE	330 J	480 J	0.65	87	82	1100 J
TOLUENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	240 J	0.54	0.5 U	0.76	0.59	31
1,1,2-TRICHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,1-TRICHLOROETHANE	0.16 J	0.26 J	0.5 U	0.5 U	0.5 U	0.39 J
TRICHLOROETHENE	2000 J	350 J	0.3 J	91	77	240 J
VINYL CHLORIDE	0.31 J	0.7	0.5 U	1.6	1.3	0.58
<i>Anions (EPA Method 300.0) (µg/L)</i>						
CHLORIDE	29400	32400	31300	38300	38000	35400
NITRATE (AS N)	4270	4030	14800	1110 J	2840 J	2950
NITRITE (AS N)	100 U	100 U	100 U	100 U	100 U	100 U
SULFATE	146000	468000 J	159000 J	239000 J	236000 J	222000 J
<i>Total Alkalinity (EPA Method 310.1) (mg/L)</i>						
BICARBONATE (AS CaCO <sub>3</sub> )	233	324	274	251	249	259
CARBONATE (AS CaCO <sub>3</sub> )	5 U	5 U	5 U	5 U	5 U	5 U
<i>Cations (EPA Method 6010B) (mg/L)</i>						
CALCIUM	503	316	370	229	208	1260
IRON	9.2	13.6	235	193	171	6.2
MAGNESIUM	125 J	98.3 J	85.6 J	74.2 J	68.3 J	115
POTASSIUM	8 J	7.2 J	19.4 J	11.8 J	12.6 J	5.8 J
SODIUM	45 J	36.6 J	38.9 J	46.1 J	39.2 J	35 J

## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 4-I

**DIRECT PUSH TECHNOLOGY GROUNDWATER SAMPLE RESULTS**  
**FORMER NAS MOFFETT FIELD**  
**MOFFETT FIELD, CA**

Sample Number	86-WOPT-637	86-WOPT-638	86-WOPT-647	86-WOPT-648	86-WOPT-649	86-WOPT-650
Sample Location	CPT-88-21	CPT-88-21	CPT-88-22	CPT-88-22	CPT-88-22	CPT-88-22
Sample Date	5/3/2005	5/3/2005	5/5/2005	5/5/2005	5/5/2005	5/5/2005
Sample Depth (feet bgs)	40-42	51-53	11-13	18-20	24-26	46-48
<b>Analyte</b>						
<i>FOCs (EPA Method 8260B) (µg/L)</i>						
ACETONE	5 UJ	15 U	11 U	16 U	14 U	5 U
BENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BROMODICHLOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BROMOFORM	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BROMOMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-BUTANONE	5 U	5 U	5 U	5 U	5 U	5 U
CARBON DISULFIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CARBON TETRACHLORIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CHLOROBENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CHLOROFORM	0.33 J	0.38 J	0.5	0.5 U	0.2 J	0.39 J
CHLOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
DIBROMOCHLOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-DICHLOROETHANE	11	6.4	23	46	11	8.5
1,2-DICHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-DICHLOROETHENE	29	31	17	54	22	32
CIS-1,2-DICHLOROETHENE	160 J	50	310	1800	900 J	110
TRANS-1,2-DICHLOROETHENE	0.54	0.5 U	2	14	16	1.3
1,2-DICHLOROPROPANE	0.5 U	0.5 U	0.5 U	0.5 U	0.24 J	0.5 U
CIS-1,3-DICHLOROPROPENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TRANS-1,3-DICHLOROPROPENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
ETHYL BENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-HEXANONE	5 U	5 U	5 U	5 U	5 U	5 U
M,P-XYLENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
METHYL TERT-BUTYL ETHER	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
4-METHYL-2-PENTANONE	5 U	5 U	5 U	5 U	5 U	5 U
METHYLENE CHLORIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
O-XYLENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
STYRENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-TETRACHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TETRACHLOROETHENE	270 J	140 J	230 J	6.8	340 J	2.7
TOLUENE	0.5 U	0.5 U	0.5 U	0.5 U	0.19 J	0.5 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	38	46	5.9	0.5 U	5.5	89
1,1,2-TRICHLOROETHANE	0.22 J	0.5 U	0.5 U	0.5 U	0.5 U	0.43 J
1,1,1-TRICHLOROETHANE	1	0.95	1.9	0.5 U	1.2	1.6
TRICHLOROETHENE	930 J	880 J	830 J	24	850 J	3600
VINYL CHLORIDE	0.44 J	0.5 U	0.99	2.6	1.1	0.72
<i>Anions (EPA Method 300.0) (µg/L)</i>						
CHLORIDE	37200	35900	43000	47000	42600	37800
NITRATE (AS N)	4470	3900	11700	200 U	4100	7830
NITRITE (AS N)	100 U	100 U	100 U	100 U	100 U	100 U
SULFATE	258000 J	229000 J	416000	315000	251000	208000
<i>Total Alkalinity (EPA Method 310.1) (mg/L)</i>						
BICARBONATE (AS CaCO <sub>3</sub> )	277	245	401	432	423	296
CARBONATE (AS CaCO <sub>3</sub> )	5 U	5 U	5 U	5 U	5 U	5 U
<i>Cations (EPA Method 6010B) (mg/L)</i>						
CALCIUM	323	317	290	334	526	363
IRON	20.5	13.4	19.1	131	14.7	18.3
MAGNESIUM	79.7 J	58.1 J	96.5 J	82.7 J	87.4 J	59 J
POTASSIUM	13.4 J	8.1 J	6.3 J	4.8 J	15.8 J	13.4 J
SODIUM	38.7 J	33.2 J	41.8 J	38.5 J	42 J	37.4 J

## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 4-I

**DIRECT PUSH TECHNOLOGY GROUNDWATER SAMPLE RESULTS**  
**FORMER NAS MOFFETT FIELD**  
**MOFFETT FIELD, CA**

Sample Number	86-WOPT-651 (PD)	86-WOPT-652	86-WOPT-661	86-WOPT-662 (PD)	86-WOPT-663	86-WOPT-664
Sample Location	CPT-88-22	CPT-88-22	CPT-88-23	CPT-88-23	CPT-88-23	CPT-88-23
Sample Date	5/5/2005	5/5/2005	5/6/2005	5/6/2005	5/6/2005	5/6/2005
Sample Depth (feet bgs)	46-48	51.5-53.5	15-17	15-17	18.5-20.5	22-24
<b>Analyte</b>						
<i>FOCs (EPA Method 8260B) (µg/L)</i>						
ACETONE	15 U	9 U	5 U	5 U	5 U	5 U
BENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BROMODICHLOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BROMOFORM	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BROMOMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-BUTANONE	5 U	5 U	5 U	5 U	5 U	5 U
CARBON DISULFIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CARBON TETRACHLORIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CHLOROBENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CHLOROFORM	0.34 J	0.37 J	0.5 U	0.5 U	0.2 J	0.23 J
CHLOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
DIBROMOCHLOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-DICHLOROETHANE	7.6	5.9	14	13	11	7.8
1,2-DICHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-DICHLOROETHENE	29	31	24	21	23	12
CIS-1,2-DICHLOROETHENE	98	71	1360	1260	476 J	200 J
TRANS-1,2-DICHLOROETHENE	1.1	1.1	7.3	5.8	1.8	1.1
1,2-DICHLOROPROPANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CIS-1,3-DICHLOROPROPENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TRANS-1,3-DICHLOROPROPENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
ETHYL BENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-HEXANONE	5 U	5 U	5 U	5 U	5 U	5 U
M,P-XYLENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
METHYL TERT-BUTYL ETHER	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
4-METHYL-2-PENTANONE	5 U	5 U	5 U	5 U	5 U	5 U
METHYLENE CHLORIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
O-XYLENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
STYRENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-TETRACHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TETRACHLOROETHENE	2.6	7.6	7.3	7.2	1306 J	320 J
TOLUENE	0.5 U	0.3 J	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	73	96	5.1	4.4	12	8.5
1,1,2-TRICHLOROETHANE	0.5 U	0.4 J	0.5 U	0.5 U	0.5 U	0.5 U
1,1,1-TRICHLOROETHANE	1.6	1.5	0.86	0.8	1.3	0.93
TRICHLOROETHENE	2400	2300	760	720	660 J	530 J
VINYL CHLORIDE	0.61	0.72	2.4	2.3	0.56	0.36 J
<i>Anions (EPA Method 300.0) (µg/L)</i>						
CHLORIDE	37700	36400	35700	35800	40000	40400
NITRATE (AS N)	7780	8260	681 J	736 J	4430	4120
NITRITE (AS N)	100 U	100 U	100 U	100 U	100 U	100 U
SULFATE	206000	137000	414000	417000	422000	402000
<i>Total Alkalinity (EPA Method 310.1) (mg/L)</i>						
BICARBONATE (AS CaCO <sub>3</sub> )	296	264	303	290	317	297
CARBONATE (AS CaCO <sub>3</sub> )	5 U	5 U	5 U	5 U	5 U	5 U
<i>Cations (EPA Method 6010B) (mg/L)</i>						
CALCIUM	338	612	397	381	357	263
IRON	21.8	6.3	16.7 J	22.1 J	26.3	21.2
MAGNESIUM	64.7 J	135 J	99.9 J	98.1 J	96.9 J	81.4 J
POTASSIUM	13.2 J	12.9 J	13.1 J	11.2 J	9.4 J	9.3 J
SODIUM	37.3 J	37.6 J	45 J	41.8 J	42.9 J	46.7 J

## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 4-I

**DIRECT PUSH TECHNOLOGY GROUNDWATER SAMPLE RESULTS**  
**FORMER NAS MOFFETT FIELD**  
**MOFFETT FIELD, CA**

Sample Number	86-WOPT-665	86-WOPT-666
Sample Location	CPT-88-23	CPT-88-23
Sample Date	5/6/2005	5/6/2005
Sample Depth (feet bgs)	26.5-28.5	30-32
<b>Analyte</b>		
<i>FOCs (EPA Method 8260) (µg/L)</i>		
ACETONE	5 U	5 U
BENZENE	0.5 U	0.5 U
BROMODICHLOROMETHANE	0.5 U	0.5 U
BROMOFORM	0.5 U	0.5 U
BROMOMETHANE	0.5 U	0.5 U
2-BUTANONE	5 U	5 U
CARBON DISULFIDE	0.5 U	0.5 U
CARBON TETRACHLORIDE	0.5 U	0.5 U
CHLOROBENZENE	0.5 U	0.5 U
CHLOROETHANE	0.5 UJ	0.5 UJ
CHLOROFORM	0.29 J	0.31 J
CHLOROMETHANE	0.5 U	0.5 U
DIBROMOCHLOROMETHANE	0.5 U	0.5 U
1,1-DICHLOROETHANE	9.8	8.9
1,2-DICHLOROETHANE	0.5 U	0.5 U
1,1-DICHLOROETHENE	21	18
CIS-1,2-DICHLOROETHENE	180 J	150 J
TRANS-1,2-DICHLOROETHENE	0.94	0.71
1,2-DICHLOROPROPANE	0.5 U	0.5 U
CIS-1,3-DICHLOROPROPENE	0.5 U	0.5 U
TRANS-1,3-DICHLOROPROPENE	0.5 U	0.5 U
ETHYL BENZENE	0.5 U	0.5 U
2-HEXANONE	5 U	5 U
M,P-XYLENE	0.5 U	0.5 U
METHYL TERT-BUTYL ETHER	0.5 U	0.5 U
4-METHYL-2-PENTANONE	5 U	5 U
METHYLENE CHLORIDE	0.5 U	0.5 U
O-XYLENE	0.5 U	0.5 U
STYRENE	0.5 U	0.5 U
1,1,2,2-TETRACHLOROETHANE	0.5 U	0.5 U
TETRACHLOROETHENE	1300 J	1300 J
TOLUENE	0.5 U	0.5 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	17	15
1,1,2-TRICHLOROETHANE	0.5 U	0.5 U
1,1,1-TRICHLOROETHANE	0.73	0.55
TRICHLOROETHENE	570 J	530 J
VINYL CHLORIDE	0.54	0.45 J
<i>Anions (EPA Method 300.0) (µg/L)</i>		
CHLORIDE	39200	38700
NITRATE (AS N)	3980	7640
NITRITE (AS N)	100 U	100 U
SULFATE	396000	354000
<i>Total Alkalinity (EPA Method 310.1) (mg/L)</i>		
BICARBONATE (AS CaCO <sub>3</sub> )	288	272
CARBONATE (AS CaCO <sub>3</sub> )	5 U	5 U
<i>Cations (EPA Method 6010B) (mg/L)</i>		
CALCIUM	690	536
IRON	11.3	5.7
MAGNESIUM	97.2 J	89 J
POTASSIUM	8.8 J	6.8 J
SODIUM	45 J	45.3 J

## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 4-1

**DIRECT PUSH TECHNOLOGY GROUNDWATER SAMPLE RESULTS  
FORMER NAS MOFFETT FIELD  
MOFFETT FIELD, CA**

**Notes:**

Bold - indicates value above method detection limit

**Abbreviations and Acronyms:**

µg/L - micrograms per liter

bgs - below ground surface

CaCO<sub>3</sub> - calcium carbonate

CA - California

EPA - U.S. Environmental Protection Agency

FD - field duplicate

J - estimated value

mg/L - milligrams per liter

N/A - not applicable

NAS - Naval Air Station

R - quality control indicates that data is not usable

U - not detected at or above the laboratory reporting limit (value indicates the reporting limit)

VOC - volatile organic compound

## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 4-2

**DIRECT PUSH TECHNOLOGY SOIL SAMPLE RESULTS**  
**FORMER NAS MOFFETT FIELD**  
**MOFFETT FIELD, CA**

Sample Number	86-WOPT-1008	86-WOPT-1009	86-WOPT-1010	86-WOPT-1011	86-WOPT-1012	86-WOPT-1013	86-WOPT-1014
Sample Location	CPT-88-1	CPT-88-1	CPT-88-1	CPT-88-1	CPT-88-1	CPT-88-1	CPT-88-1
Sample Date	4/12/2005	4/12/2005	4/12/2005	4/12/2005	4/12/2005	4/12/2005	4/12/2005
Sample Depth (feet bgs)	12.5-13.5	18.5-19.5	24.5-25.5	30.5-31.5	38.5-39.5	46.5-47.5	53-54
<b>Analyte</b>							
<b>MOISTURE (PERCENT)</b>	<b>20.1</b>	<b>20.9</b>	<b>19.9</b>	<b>22.4</b>	<b>16.2</b>	<b>3.9</b>	<b>9.7</b>
<b>VOCs (EPA Method 8260B) (<math>\mu\text{g/kg}</math>)</b>							
ACETONE	130 U	130 U	120 U	130 U	120 U	100 U	110 UJ
BENZENE	6 U	6 U	6 U	6 U	6 U	5 U	6 U
BROMODICHLOROMETHANE	6 U	6 U	6 U	6 U	6 U	5 U	6 U
BROMOFORM	6 U	6 U	6 U	6 U	6 U	5 U	6 U
BROMOMETHANE	13 U	13 U	12 U	13 U	12 U	10 U	11 UJ
2-BUTANONE	63 U	63 U	62 U	64 U	60 U	52 U	55 UJ
CARBON DISULFIDE	6 U	6 U	6 U	6 U	6 U	5 U	6 UJ
CARBON TETRACHLORIDE	6 U	6 U	6 U	6 U	6 U	5 U	6 U
CHLOROBENZENE	6 U	6 U	6 U	6 U	6 U	5 U	6 U
CHLOROETHANE	6 U	6 U	6 U	6 U	6 U	5 U	6 U
CHLOROFORM	6 U	6 U	6 U	6 U	6 U	5 U	6 U
CHLOROMETHANE	6 U	6 U	6 U	6 U	6 U	5 U	6 U
DIBROMOCHLOROMETHANE	6 U	6 U	6 U	6 U	6 U	5 U	6 U
1,1-DICHLOROETHANE	9.7	2.7 J	1.9 J	5.3 J	4 J	5 U	6 U
1,2-DICHLOROETHANE	6 U	6 U	6 U	6 U	6 U	5 U	6 U
1,1-DICHLOROETHENE	22	5.6 J	4.7 J	6.7	11	1.8 J	2.2 J
CIS-1,2-DICHLOROETHENE	450	1400 J	280	150	110	12	6.7
TRANS-1,2-DICHLOROETHENE	3.1 J	4.8 J	7.2	2.5 J	2.7 J	5 U	6 U
1,2-DICHLOROPROPANE	6 U	6 U	6 U	6 U	6 U	5 U	6 U
CIS-1,3-DICHLOROPROPENE	6 U	6 U	6 U	6 U	6 U	5 U	6 U
TRANS-1,3-DICHLOROPROPENE	6 U	6 U	6 U	6 U	6 U	5 U	6 U
ETHYL BENZENE	6 U	6 U	6 U	6 U	6 U	5 U	6 U
2-HEXANONE	63 U	63 U	62 U	64 U	60 U	52 U	55 UJ
METHYL TERT-BUTYL ETHER	6 U	6 U	6 U	6 U	6 U	5 U	6 U
4-METHYL-2-PENTANONE	63 UJ	63 U	62 U	64 U	60 U	52 U	55 UJ
METHYLENE CHLORIDE	63 U	63 U	62 U	64 U	60 U	52 U	55 U
STYRENE	6 U	6 U	6 U	6 U	6 U	5 U	6 U
1,1,2,2-TETRACHLOROETHANE	6 UJ	6 U	6 U	6 U	6 U	5 U	6 U
TETRACHLOROETHENE	6400	310	330	650	26	5 U	2.6 J
TOLUENE	6 U	6 U	6 U	6 U	6 U	5 U	6 U
1,1,2-TRICHLOROETHANE	6 U	6 U	6 U	6 U	6 U	5 U	6 U
1,1,1-TRICHLOROETHANE	6 U	6 U	6 U	6 U	6 U	5 U	6 U
TRICHLOROETHENE	1700 J	190	530	390	580	440	420
VINYL ACETATE	63 U	63 U	62 U	64 U	60 U	52 U	55 UJ
VINYL CHLORIDE	6 U	6 U	6 U	6 U	6 U	5 U	6 U
XYLENES (TOTAL)	19 U	19 U	19 U	19 U	18 U	16 U	17 U
<b>TOC (Walkley-Black) (mg/kg)</b>							
<b>TOTAL ORGANIC CARBON</b>	<b>2660</b>	<b>3540</b>	<b>2050</b>	<b>1990 J</b>	<b>1180 J</b>	<b>2000 U</b>	<b>2000 U</b>

## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 4-2

**DIRECT PUSH TECHNOLOGY SOIL SAMPLE RESULTS**  
**FORMER NAS MOFFETT FIELD**  
**MOFFETT FIELD, CA**

Sample Number	86-WOPT-507	86-WOPT-508	86-WOPT-509	86-WOPT-510	86-WOPT-511	86-WOPT-512	86-WOPT-513
Sample Location	CPT-88-2	CPT-88-2	CPT-88-2	CPT-88-2	CPT-88-2	CPT-88-2	CPT-88-2
Sample Date	4/12/2005	4/12/2005	4/12/2005	4/12/2005	4/12/2005	4/12/2005	4/12/2005
Sample Depth (feet bgs)	12-13	15.5-16.5	23-24	31.5-32.5	38.5-39.5	45.5-46.5	52.5-53.5
<b>Analyte</b>							
<b>MOISTURE (PERCENT)</b>	<b>25.1</b>	<b>19.5</b>	<b>19.8</b>	<b>20.3</b>	<b>17.9</b>	<b>14.6</b>	<b>15.8</b>
<i>VOCs (EPA Method 8260B) (µg/kg)</i>							
ACETONE	130 U	120 U	120 U	130 U	120 U	120 U	120 U
BENZENE	7 U	6 U	6 U	6 U	6 U	6 U	6 U
BROMODICHLOROMETHANE	7 U	6 U	6 U	6 U	6 U	6 U	6 U
BROMOFORM	7 U	6 U	6 U	6 U	6 U	6 U	6 U
BROMOMETHANE	13 U	12 U	12 U	13 U	12 U	12 U	12 U
2-BUTANONE	67 U	62 U	62 U	63 U	61 U	59 U	59 U
CARBON DISULFIDE	7 U	6 U	6 U	6 U	6 U	6 U	6 U
CARBON TETRACHLORIDE	7 U	6 U	6 U	6 U	6 U	6 U	6 U
CHLOROBENZENE	7 U	6 U	6 U	6 U	6 U	6 U	6 U
CHLOROETHANE	7 U	6 U	6 U	6 U	6 U	6 U	6 U
CHLOROFORM	7 U	6 U	6 U	6 U	6 U	6 U	6 U
CHLOROMETHANE	7 U	6 U	6 U	6 U	6 U	6 U	6 U
DIBROMOCHLOROMETHANE	7 U	6 U	6 U	6 U	6 U	6 U	6 U
1,1-DICHLOROETHANE	15	4.1 J	6 U	4.5 J	2.3 J	1.3 J	6 U
1,2-DICHLOROETHANE	7 U	6 U	6 U	6 U	6 U	6 U	6 U
1,1-DICHLOROETHENE	24	9.8	2.2 J	7.5	5.7 J	4.2 J	2.2 J
CIS-1,2-DICHLOROETHENE	280	730	60	190	40	19	6.7
TRANS-1,2-DICHLOROETHENE	1.9 J	6 U	6 U	6 U	6 U	6 U	6 U
1,2-DICHLOROPROPANE	7 U	6 U	6 U	6 U	6 U	6 U	6 U
CIS-1,3-DICHLOROPROPENE	7 U	6 U	6 U	6 U	6 U	6 U	6 U
TRANS-1,3-DICHLOROPROPENE	7 U	6 U	6 U	6 U	6 U	6 U	6 U
ETHYL BENZENE	7 U	6 U	6 U	6 U	6 U	6 U	6 U
2-HEXANONE	67 U	62 U	62 U	63 U	61 U	59 U	59 U
METHYL TERT-BUTYL ETHER	7 U	6 U	6 U	6 U	6 U	6 U	6 U
4-METHYL-2-PENTANONE	67 U	62 U	62 U	63 U	61 U	59 U	59 U
METHYLENE CHLORIDE	67 U	62 U	62 U	63 U	61 U	59 U	59 U
STYRENE	7 U	6 U	6 U	6 U	6 U	6 U	6 U
1,1,2,2-TETRACHLOROETHANE	7 U	6 U	6 U	6 U	6 U	6 U	6 U
TETRACHLOROETHENE	2.6 J	6 U	1.2 J	1.3 J	6 U	0.75 J	6 U
TOLUENE	7 U	6 U	6 U	6 U	6 U	6 U	6 U
1,1,2-TRICHLOROETHANE	7 U	6 U	6 U	6 U	6 U	6 U	6 U
1,1,1-TRICHLOROETHANE	1.6 J	6 U	6 U	6 U	6 U	6 U	6 U
TRICHLOROETHENE	660	67	240	240	520	330	440
VINYL ACETATE	67 U	62 U	62 U	63 U	61 U	59 U	59 U
VINYL CHLORIDE	7 U	6 U	6 U	6 U	6 U	6 U	6 U
XYLENES (TOTAL)	20 U	19 U	19 U	19 U	18 U	18 U	18 U
<i>TOC (Walkley-Black) (mg/kg)</i>							
TOTAL ORGANIC CARBON	<b>3110</b>	<b>7060</b>	<b>1730 J</b>	<b>2000 U</b>	<b>2000 U</b>	<b>1250 J</b>	<b>2000 U</b>



## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 4-2

**DIRECT PUSH TECHNOLOGY SOIL SAMPLE RESULTS**  
**FORMER NAS MOFFETT FIELD**  
**MOFFETT FIELD, CA**

Sample Number	86-WOPT-545	86-WOPT-546	86-WOPT-547	86-WOPT-548	86-WOPT-549	86-WOPT-550	86-WOPT-1034
Sample Location	CPT-88-3	CPT-88-3	CPT-88-3	CPT-88-3	CPT-88-3	CPT-88-3	CPT-88-4
Sample Date	4/14/2005	4/14/2005	4/14/2005	4/14/2005	4/14/2005	4/14/2005	4/14/2005
Sample Depth (feet bgs)	12-13	18.5-19.5	25.5-26.5	32.5-33.5	41.5-42.5	46.5-47.5	11-12
Analyte							
MOISTURE (PERCENT)	20.9	21.4	14.5	22.2	13.5	12	20.1
VOCs (EPA Method 8260B) (µg/kg)							
ACETONE	130 U	130 U	120 U	130 U	120 U	110 U	130 U
BENZENE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
BROMODICHLOROMETHANE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
BROMOFORM	6 U	6 U	6 U	6 U	6 U	6 U	6 U
BROMOMETHANE	13 UJ	13 UJ	12 UJ	13 UJ	12 UJ	11 UJ	13 UJ
2-BUTANONE	63 U	64 U	58 U	64 U	58 U	57 U	63 U
CARBON DISULFIDE	6 U	6 U	1.3 J	6 U	6 U	6 U	6 U
CARBON TETRACHLORIDE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
CHLOROBENZENE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
CHLOROETHANE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
CHLOROFORM	6 U	6 U	6 U	6 U	6 U	6 U	6 U
CHLOROMETHANE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
DIBROMOCHLOROMETHANE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
1,1-DICHLOROETHANE	11	7.5	6.3	1.8 J	1.6 J	6 U	15
1,2-DICHLOROETHANE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
1,1-DICHLOROETHENE	24	18	11	1.4 J	3.5 J	3 J	15
CIS-1,2-DICHLOROETHENE	1300	1300 J	700	44	35	14	220
TRANS-1,2-DICHLOROETHENE	5.6 J	10	37	3.4 J	6 U	6 U	6 U
1,2-DICHLOROPROPANE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
CIS-1,3-DICHLOROPROPENE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
TRANS-1,3-DICHLOROPROPENE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
ETHYL BENZENE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
2-HEXANONE	63 U	64 U	58 U	64 U	58 U	57 U	63 U
METHYL TERT-BUTYL ETHER	6 U	6 U	6 U	6 U	6 U	6 U	6 U
4-METHYL-2-PENTANONE	63 U	64 U	58 U	64 U	58 U	57 U	63 U
METHYLENE CHLORIDE	63 U	64 U	58 U	64 U	58 U	57 U	63 U
STYRENE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
1,1,2,2-TETRACHLOROETHANE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
TETRACHLOROETHENE	3500	58	1.9 J	0.78 J	2.7 J	2.5 J	6 U
TOLUENE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
1,1,2-TRICHLOROETHANE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
1,1,1-TRICHLOROETHANE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
TRICHLOROETHENE	1800	930	11	25	240	310	1.7 J
VINYL ACETATE	63 U	64 U	58 U	64 U	58 U	57 U	63 U
VINYL CHLORIDE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
XYLENES (TOTAL)	19 U	19 U	18 U	19 U	17 U	17 U	19 U
TOC (Walkley-Black) (mg/kg)							
TOTAL ORGANIC CARBON	4880	2640	8120	4510	3220	NA	1390 J

## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 4-2

**DIRECT PUSH TECHNOLOGY SOIL SAMPLE RESULTS**  
**FORMER NAS MOFFETT FIELD**  
**MOFFETT FIELD, CA**

Sample Number	86-WOPT-1035	86-WOPT-1036	86-WOPT-1037	86-WOPT-1038	86-WOPT-1039	86-WOPT-532	86-WOPT-533
Sample Location	CPT-88-4	CPT-88-4	CPT-88-4	CPT-88-4	CPT-88-4	CPT-88-5	CPT-88-5
Sample Date	4/14/2005	4/14/2005	4/14/2005	4/14/2005	4/14/2005	4/14/2005	4/14/2005
Sample Depth (feet bgs)	19.5-20.5	26-27	34-35	43-44	50-51	10.5-11.5	23.5-24.5
<b>Analyte</b>							
<b>MOISTURE (PERCENT)</b>	<b>23.1</b>	<b>18.7</b>	<b>18.3</b>	<b>12.3</b>	<b>20.7</b>	<b>20.2</b>	<b>13.9</b>
<i>VOCs (EPA Method 8260B) (µg/kg)</i>							
ACETONE	130 U	120 U	120 U	110 U	130 U	130 U	120 U
BENZENE	7 U	6 U	6 U	6 U	6 U	6 U	6 U
BROMODICHLOROMETHANE	7 U	6 U	6 U	6 U	6 U	6 U	6 U
BROMOFORM	7 U	6 U	6 U	6 U	6 U	6 U	6 U
BROMOMETHANE	13 U	12 U	12 U	11 U	13 U	13 U	12 U
2-BUTANONE	65 U	62 U	61 U	57 U	63 U	63 U	58 U
CARBON DISULFIDE	7 U	6 U	6 U	6 U	6 U	6 U	6 U
CARBON TETRACHLORIDE	7 U	6 U	6 U	6 U	6 U	6 U	6 U
CHLOROBENZENE	7 U	6 U	6 U	6 U	6 U	6 U	6 U
CHLOROETHANE	7 U	6 U	6 U	6 U	6 U	6 U	6 U
CHLOROFORM	7 U	6 U	6 U	6 U	6 U	6 U	6 U
CHLOROMETHANE	7 U	6 U	6 U	6 U	6 U	6 U	6 U
DIBROMOCHLOROMETHANE	7 U	6 U	6 U	6 U	6 U	6 U	6 U
1,1-DICHLOROETHANE	7 U	5.5 J	2.5 J	6 U	6 U	11	6 U
1,2-DICHLOROETHANE	7 U	6 U	6 U	6 U	6 U	6 U	6 U
1,1-DICHLOROETHENE	5 J	8.2	4 J	6 U	4.9 J	14	6 U
CIS-1,2-DICHLOROETHENE	310	490	51	6.6	13	280	17
TRANS-1,2-DICHLOROETHENE	3.9 J	4.5 J	6 U	6 U	6 U	1.8 J	6 U
1,2-DICHLOROPROPANE	7 U	6 U	6 U	6 U	6 U	6 U	6 U
CIS-1,3-DICHLOROPROPENE	7 U	6 U	6 U	6 U	6 U	6 U	6 U
TRANS-1,3-DICHLOROPROPENE	7 U	6 U	6 U	6 U	6 U	6 U	6 U
ETHYL BENZENE	7 U	6 U	6 U	6 U	6 U	6 U	6 U
2-HEXANONE	65 U	62 U	61 U	57 U	63 U	63 U	58 U
METHYL TERT-BUTYL ETHER	7 U	6 U	6 U	6 U	6 U	6 U	6 U
4-METHYL-2-PENTANONE	65 U	62 U	61 U	57 U	63 U	63 U	58 U
METHYLENE CHLORIDE	65 U	62 U	61 U	57 U	63 U	63 U	58 U
STYRENE	7 U	6 U	6 U	6 U	6 U	6 U	6 U
1,1,2,2-TETRACHLOROETHANE	7 U	6 U	6 U	6 U	6 U	6 U	6 U
TETRACHLOROETHENE	7 U	6 U	6 U	6 U	6 U	6 U	6 U
TOLUENE	7 U	6 U	6 U	6 U	6 U	6 U	6 U
1,1,2-TRICHLOROETHANE	7 U	6 U	6 U	6 U	6 U	6 U	6 U
1,1,1-TRICHLOROETHANE	7 U	6 U	6 U	6 U	6 U	6 U	6 U
TRICHLOROETHENE	75	6	240	72	280	24 J	56
VINYL ACETATE	65 U	62 U	61 U	57 U	63 U	63 U	58 U
VINYL CHLORIDE	7 U	6 U	6 U	6 U	6 U	6 U	6 U
XYLENES (TOTAL)	20 U	18 U	18 U	17 U	19 U	19 U	17 U
<i>TOC (Walkley-Black) (mg/kg)</i>							
TOTAL ORGANIC CARBON	4510	4440	1510 J	980 J	2000 U	4080	3230

## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 4-2

**DIRECT PUSH TECHNOLOGY SOIL SAMPLE RESULTS**  
**FORMER NAS MOFFETT FIELD**  
**MOFFETT FIELD, CA**

Sample Number	86-WOPT-534	86-WOPT-535	86-WOPT-536	86-WOPT-537	86-WOPT-556	86-WOPT-557	86-WOPT-558
Sample Location	CPT-88-5	CPT-88-5	CPT-88-5	CPT-88-5	CPT-88-6	CPT-88-6	CPT-88-6
Sample Date	4/14/2005	4/14/2005	4/14/2005	4/14/2005	4/15/2005	4/15/2005	4/15/2005
Sample Depth (feet bgs)	31.5-32.5	38.5-39.5	46.5-47.5	50.5-51.5	14.5-15.5	21.5-22.5	29.5-30.5
<b>Analyte</b>							
<b>MOISTURE (PERCENT)</b>	<b>17.8</b>	<b>23</b>	<b>10.7</b>	<b>9.9</b>	<b>20.8</b>	<b>17</b>	<b>14.2</b>
<b>VOCs (EPA Method 8260B) (<math>\mu\text{g/kg}</math>)</b>							
ACETONE	120 U	130 U	110 U	110 U	130 U	120 U	120 U
BENZENE	6 U	7 U	6 U	6 U	6 U	6 U	6 U
BROMODICHLOROMETHANE	6 U	7 U	6 U	6 U	6 U	6 U	6 U
BROMOFORM	6 U	7 U	6 U	6 U	6 U	6 U	6 U
BROMOMETHANE	12 UJ	13 UJ	11 UJ	11 UJ	13 U	12 U	12 U
2-BUTANONE	61 U	65 U	56 U	55 U	63 U	60 U	58 U
CARBON DISULFIDE	6 U	7 U	6 U	6 U	6 U	6 U	6 U
CARBON TETRACHLORIDE	6 U	7 U	6 U	6 U	6 U	6 U	6 U
CHLOROBENZENE	6 U	7 U	6 U	6 U	6 U	6 U	6 U
CHLOROETHANE	6 U	7 U	6 U	6 U	6 U	6 U	6 U
CHLOROFORM	6 U	7 U	6 U	6 U	6 U	6 U	6 U
CHLOROMETHANE	6 U	7 U	6 U	6 U	6 U	6 U	6 U
DIBROMOCHLOROMETHANE	6 U	7 U	6 U	6 U	6 U	6 U	6 U
1,1-DICHLOROETHANE	1.5 J	1.6 J	6 U	6 U	3.3 J	1.8 J	6 U
1,2-DICHLOROETHANE	6 U	7 U	6 U	6 U	6 U	6 U	6 U
1,1-DICHLOROETHENE	4.3 J	6.5 J	3.4 J	2.9 J	7.6	4.1 J	2.6 J
CIS-1,2-DICHLOROETHENE	47	59	18	13	87	46	27
TRANS-1,2-DICHLOROETHENE	6 U	7 U	6 U	6 U	6 U	6 U	6 U
1,2-DICHLOROPROPANE	6 U	7 U	6 U	6 U	6 U	6 U	6 U
CIS-1,3-DICHLOROPROPENE	6 U	7 U	6 U	6 U	6 U	6 U	6 U
TRANS-1,3-DICHLOROPROPENE	6 U	7 U	6 U	6 U	6 U	6 U	6 U
ETHYL BENZENE	6 U	7 U	6 U	6 U	6 U	6 U	6 U
2-HEXANONE	61 U	65 U	56 U	55 U	63 UJ	60 UJ	58 UJ
METHYL TERT-BUTYL ETHER	6 U	7 U	6 U	6 U	6 U	6 U	6 U
4-METHYL-2-PENTANONE	61 U	65 U	56 U	55 U	63 UJ	60 UJ	58 UJ
METHYLENE CHLORIDE	61 U	65 U	56 U	55 U	63 U	60 U	58 U
STYRENE	6 U	7 U	6 U	6 U	6 U	6 U	6 U
1,1,2,2-TETRACHLOROETHANE	6 U	7 U	6 U	6 U	6 U	6 U	6 U
TETRACHLOROETHENE	30	42	6.4	2.5 J	45	9.7	3.8 J
TOLUENE	6 U	7 U	6 U	6 U	6 U	6 U	6 U
1,1,2-TRICHLOROETHANE	6 U	7 U	6 U	6 U	6 U	6 U	6 U
1,1,1-TRICHLOROETHANE	6 U	7 U	6 U	6 U	6 U	6 U	6 U
TRICHLOROETHENE	360	510	1400	350	1900	490	290
VINYL ACETATE	61 U	65 U	56 U	55 U	63 U	60 U	58 U
VINYL CHLORIDE	6 U	7 U	6 U	6 U	6 U	6 U	6 U
XYLENES (TOTAL)	18 U	19 U	17 U	17 U	19 U	18 U	17 U
<b>TOC (Walkley-Black) (mg/kg)</b>							
<b>TOTAL ORGANIC CARBON</b>	<b>3520</b>	<b>3200</b>	<b>3500</b>	<b>3050</b>	<b>2000 U</b>	<b>2000 U</b>	<b>2000 U</b>

## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 4-2

**DIRECT PUSH TECHNOLOGY SOIL SAMPLE RESULTS**  
**FORMER NAS MOFFETT FIELD**  
**MOFFETT FIELD, CA**

Sample Number	86-WOPT-559	86-WOPT-1059	86-WOPT-1060	86-WOPT-1061	86-WOPT-1062	86-WOPT-1063	86-WOPT-1047
Sample Location	CPT-88-6	CPT-88-7	CPT-88-7	CPT-88-7	CPT-88-7	CPT-88-7	CPT-88-8
Sample Date	4/15/2005	4/15/2005	4/15/2005	4/15/2005	4/15/2005	4/15/2005	4/14/2005
Sample Depth (feet bgs)	42.5-43.5	10-11	24-25	30-31	40-41	55-56	11-12
<b>Analyte</b>							
<b>MOISTURE (PERCENT)</b>	<b>17.9</b>	<b>8.5</b>	<b>22</b>	<b>22.6</b>	<b>20.1</b>	<b>19.9</b>	<b>14.8</b>
<i>VOCs (EPA Method 8260B) (µg/kg)</i>							
ACETONE	120 U	110 U	130 U	130 U	130 U	120 U	120 U
BENZENE	6 U	6 U	6 U	7 U	6 U	6 U	6 U
BROMODICHLOROMETHANE	6 U	6 U	6 U	7 U	6 U	6 U	6 U
BROMOFORM	6 U	6 U	6 U	7 U	6 U	6 U	6 UJ
BROMOMETHANE	12 U	11 U	13 U	13 U	13 U	12 U	12 U
2-BUTANONE	61 U	55 U	64 U	65 U	63 U	62 U	59 U
CARBON DISULFIDE	6 U	6 U	6 U	7 U	6 U	6 U	6 U
CARBON TETRACHLORIDE	6 U	6 U	6 U	7 U	6 U	6 U	6 U
CHLOROBENZENE	6 U	6 U	6 U	7 U	6 U	6 U	6 U
CHLOROETHANE	6 U	6 U	6 U	7 U	6 U	6 U	6 U
CHLOROFORM	6 U	6 U	6 U	7 U	6 U	6 U	6 U
CHLOROMETHANE	6 U	6 U	6 U	7 U	6 U	6 U	6 U
DIBROMOCHLOROMETHANE	6 U	6 U	6 U	7 U	6 U	6 U	6 U
1,1-DICHLOROETHANE	2 J	6 U	3.1 J	2.5 J	2 J	1.4 J	6 U
1,2-DICHLOROETHANE	6 U	6 U	6 U	7 U	6 U	6 U	6 U
1,1-DICHLOROETHENE	8.2	1.3 J	3.2 J	2.8 J	4 J	2.1 J	6 U
CIS-1,2-DICHLOROETHENE	37	38	220	170	110	42	20
TRANS-1,2-DICHLOROETHENE	6 U	6 U	6 U	7 U	6 U	6 U	6 U
1,2-DICHLOROPROPANE	6 U	6 U	6 U	7 U	6 U	6 U	6 U
CIS-1,3-DICHLOROPROPENE	6 U	6 U	6 U	7 U	6 U	6 U	6 U
TRANS-1,3-DICHLOROPROPENE	6 U	6 U	6 U	7 U	6 U	6 U	6 U
ETHYL BENZENE	6 U	6 U	6 U	7 U	6 U	6 U	6 U
2-HEXANONE	61 UJ	55 UJ	64 UJ	65 UJ	63 UJ	62 UJ	59 UJ
METHYL TERT-BUTYL ETHER	6 U	6 U	6 U	7 U	6 U	6 U	6 U
4-METHYL-2-PENTANONE	61 UJ	55 UJ	64 UJ	65 UJ	63 UJ	62 UJ	59 UJ
METHYLENE CHLORIDE	61 U	55 U	64 U	65 U	63 U	62 U	59 U
STYRENE	6 U	6 U	6 U	7 U	6 U	6 U	6 U
1,1,2,2-TETRACHLOROETHANE	6 U	6 U	6 U	7 U	6 U	6 U	6 U
TETRACHLOROETHENE	27	0.64 J	2.1 J	3.6 J	11	9.2	6 U
TOLUENE	6 U	6 U	6 U	7 U	6 U	6 U	6 U
1,1,2-TRICHLOROETHANE	6 U	6 U	6 U	7 U	6 U	6 U	6 U
1,1,1-TRICHLOROETHANE	6 U	6 U	6 U	7 U	6 U	6 U	6 U
TRICHLOROETHENE	1200 J	150	14	70	190	150	85
VINYL ACETATE	61 U	55 U	64 U	65 U	63 U	62 U	59 U
VINYL CHLORIDE	6 U	6 U	6 U	7 U	6 U	6 U	6 U
XYLENES (TOTAL)	18 U	16 U	19 U	19 U	19 U	19 U	18 U
<i>TOC (Walkley-Black) (mg/kg)</i>							
TOTAL ORGANIC CARBON	2000 U	2000 U	2000 U	2000 U	1160 J	1540 J	1570 J

## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 4-2

**DIRECT PUSH TECHNOLOGY SOIL SAMPLE RESULTS**  
**FORMER NAS MOFFETT FIELD**  
**MOFFETT FIELD, CA**

Sample Number	86-WOPT-1048	86-WOPT-1049	86-WOPT-1050	86-WOPT-1051	86-WOPT-1052	86-WOPT-1022	86-WOPT-1023
Sample Location	CPT-88-8	CPT-88-8	CPT-88-8	CPT-88-8	CPT-88-8	CPT-88-9	CPT-88-9
Sample Date	4/14/2005	4/14/2005	4/14/2005	4/14/2005	4/14/2005	4/13/2005	4/13/2005
Sample Depth (feet bgs)	19-20	25-26	32-33	40-41	54-55	11-12	18.5-19.5
Analyte							
MOISTURE (PERCENT)	19.1	21.7	14	18.9	18.3	18.7	18.8
VOCs (EPA Method 8260B) ( $\mu\text{g/kg}$ )							
ACETONE	120 U	130 U	120 U	120 U	120 U	120 UJ	120 UJ
BENZENE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
BROMODICHLOROMETHANE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
BROMOFORM	6 U	6 UJ	6 UJ	6 UJ	6 UJ	6 U	6 U
BROMOMETHANE	12 U	13 U	12 U	12 U	12 U	12 U	12 U
2-BUTANONE	62 U	64 U	58 U	62 U	61 U	62 UJ	62 UJ
CARBON DISULFIDE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
CARBON TETRACHLORIDE	6 U	6 U	6 U	6 U	6 U	6 UJ	6 UJ
CHLOROBENZENE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
CHLOROETHANE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
CHLOROFORM	6 U	6 U	6 U	6 U	6 U	6 U	6 U
CHLOROMETHANE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
DIBROMOCHLOROMETHANE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
1,1-DICHLOROETHANE	4.3 J	2.2 J	6 U	3.2 J	1.8 J	2.4 J	6 U
1,2-DICHLOROETHANE	6 U	6 U	6 U	6 U	6 U	6 UJ	6 UJ
1,1-DICHLOROETHENE	3.1 J	3.7 J	1.9 J	11	6.8	6.9	6 U
CIS-1,2-DICHLOROETHENE	150	100	55	66	32	540 J	22
TRANS-1,2-DICHLOROETHENE	6 U	6 U	6 U	6 U	6 U	14	6 U
1,2-DICHLOROPROPANE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
CIS-1,3-DICHLOROPROPENE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
TRANS-1,3-DICHLOROPROPENE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
ETHYL BENZENE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
2-HEXANONE	62 UJ	64 UJ	58 UJ	62 UJ	61 UJ	62 U	62 U
METHYL TERT-BUTYL ETHER	6 U	6 U	6 U	6 U	6 U	6 U	6 U
4-METHYL-2-PENTANONE	62 UJ	64 U	58 U	62 U	61 U	62 U	62 U
METHYLENE CHLORIDE	62 U	64 U	58 U	62 U	61 U	62 U	62 U
STYRENE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
1,1,2,2-TETRACHLOROETHANE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
TETRACHLOROETHENE	6 U	16	4.5 J	1.6 J	12	31	0.99 J
TOLUENE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
1,1,2-TRICHLOROETHANE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
1,1,1-TRICHLOROETHANE	6 U	6 U	6 U	6 U	6 U	6 UJ	6 UJ
TRICHLOROETHENE	330	240	220	440	550	1200	130
VINYL ACETATE	62 U	64 U	58 U	62 U	61 U	62 U	62 U
VINYL CHLORIDE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
XYLENES (TOTAL)	19 U	19 U	17 U	18 U	18 U	18 U	18 U
TOC (Walkley-Black) (mg/kg)							
TOTAL ORGANIC CARBON	2900	1450 J	1010 J	1610 J	1010 J	2630	1960 J

## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 4-2

**DIRECT PUSH TECHNOLOGY SOIL SAMPLE RESULTS**  
**FORMER NAS MOFFETT FIELD**  
**MOFFETT FIELD, CA**

Sample Number	86-WOPT-1024	86-WOPT-1025	86-WOPT-1026	86-WOPT-522	86-WOPT-523	86-WOPT-524	86-WOPT-525
Sample Location	CPT-88-9	CPT-88-9	CPT-88-9	CPT-88-10	CPT-88-10	CPT-88-10	CPT-88-10
Sample Date	4/13/2005	4/13/2005	4/13/2005	4/13/2005	4/13/2005	4/13/2005	4/13/2005
Sample Depth (feet bgs)	23-24	33-34	42-43	10.5-11.5	17.5-18.5	23.5-24.5	33.5-34.5
Analyte							
MOISTURE (PERCENT)	20.1	17.4	19.5	20.4	18.7	11.8	18.6
VOCs (EPA Method 8260B) ( $\mu\text{g/kg}$ )							
ACETONE	130 UJ	120 UJ	120 U	130 U	120 U	110 U	120 U
BENZENE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
BROMODICHLOROMETHANE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
BROMOFORM	6 U	6 U	6 U	6 U	6 U	6 U	6 U
BROMOMETHANE	13 U	17	12 UJ	13 UJ	12 UJ	11 UJ	12 UJ
2-BUTANONE	63 UJ	61 UJ	62 U	63 U	62 U	57 U	61 U
CARBON DISULFIDE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
CARBON TETRACHLORIDE	6 UJ	6 UJ	6 U	6 U	6 U	6 U	6 U
CHLOROBENZENE	6 U	6 U	6 UJ	6 UJ	6 U	6 U	6 U
CHLOROETHANE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
CHLOROFORM	6 U	6 U	6 U	6 U	6 U	6 U	6 U
CHLOROMETHANE	6 U	6 U	6 UJ	6 UJ	6 UJ	6 UJ	6 UJ
DIBROMOCHLOROMETHANE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
1,1-DICHLOROETHANE	6 U	5.5 J	3.5 J	8.1	1.8 J	6 U	4.9 J
1,2-DICHLOROETHANE	6 UJ	6 UJ	6 U	6 U	6 U	6 U	6 U
1,1-DICHLOROETHENE	1.5 J	10	9.3	23 J	6.3	1.5 J	4.2 J
CIS-1,2-DICHLOROETHENE	44	100	81	270	910 J	110	38
TRANS-1,2-DICHLOROETHENE	1.8 J	2.6 J	6 U	4.3 J	9.7	1.5 J	6 U
1,2-DICHLOROPROPANE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
CIS-1,3-DICHLOROPROPENE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
TRANS-1,3-DICHLOROPROPENE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
ETHYL BENZENE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
2-HEXANONE	63 U	61 U	62 U	63 U	62 U	57 U	61 U
METHYL TERT-BUTYL ETHER	6 U	6 U	6 U	6 U	6 U	6 U	6 U
4-METHYL-2-PENTANONE	63 U	61 U	62 U	63 UJ	62 U	57 U	61 U
METHYLENE CHLORIDE	63 U	61 U	62 U	63 U	62 U	57 U	61 U
STYRENE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
1,1,2,2-TETRACHLOROETHANE	6 U	6 U	6 U	6 UJ	6 U	6 U	6 U
TETRACHLOROETHENE	2.4 J	1 J	6 U	140	240	6.3	11
TOLUENE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
1,1,2-TRICHLOROETHANE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
1,1,1-TRICHLOROETHANE	6 UJ	6 UJ	6 U	6 U	6 U	6 U	6 U
TRICHLOROETHENE	180	430	680 J	1000 J	1000	160	86
VINYL ACETATE	63 U	61 U	62 U	63 U	62 U	57 U	61 U
VINYL CHLORIDE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
XYLENES (TOTAL)	19 U	18 U	19 U	19 U	18 U	17 U	18 U
TOC (Walkley-Black) (mg/kg)							
TOTAL ORGANIC CARBON	1300 J	1170 J	2000 U	1930 J	4090	1010 J	1940 J

## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 4-2

**DIRECT PUSH TECHNOLOGY SOIL SAMPLE RESULTS**  
**FORMER NAS MOFFETT FIELD**  
**MOFFETT FIELD, CA**

Sample Number	86-WOPT-526	86-WOPT-527	86-WOPT-597	86-WOPT-598	86-WOPT-599	86-WOPT-600	86-WOPT-1070
Sample Location	CPT-88-10	CPT-88-10	CPT-88-11	CPT-88-11	CPT-88-11	CPT-88-11	CPT-88-12
Sample Date	4/13/2005	4/13/2005	4/21/2005	4/21/2005	4/21/2005	4/21/2005	4/18/2005
Sample Depth (feet bgs)	42.5-43.5	47.5-48.5	11-12	18.5-19.5	31.5-32.5	45.5-46.5	17-18
<b>Analyte</b>							
<b>MOISTURE (PERCENT)</b>	<b>12.8</b>	<b>13.2</b>	<b>16.6</b>	<b>24.4</b>	<b>18.4</b>	<b>14</b>	<b>20.5</b>
<b>VOCs (EPA Method 8260B) (µg/kg)</b>							
ACETONE	110 U	120 U	120 U	130 U	120 U	120 U	130 U
BENZENE	6 U	6 U	6 U	7 U	6 U	6 U	6 U
BROMODICHLOROMETHANE	6 U	6 U	6 U	7 U	6 U	6 U	6 U
BROMOFORM	6 U	6 U	6 U	7 U	6 U	6 U	6 U
BROMOMETHANE	11 UJ	12 UJ	12 U	13 U	12 U	12 U	13 U
2-BUTANONE	57 U	58 U	60 U	66 U	61 U	58 U	63 U
CARBON DISULFIDE	6 U	6 U	6 U	7 U	6 U	6 U	6 U
CARBON TETRACHLORIDE	6 U	6 U	6 U	7 U	6 U	6 U	6 U
CHLOROBENZENE	6 U	6 U	6 U	7 U	6 U	6 U	6 U
CHLOROETHANE	6 U	6 U	6 U	7 U	6 U	6 U	6 U
CHLOROFORM	6 U	6 U	6 U	7 U	6 U	6 U	6 U
CHLOROMETHANE	6 UJ	6 UJ	6 U	7 U	6 U	6 U	6 U
DIBROMOCHLOROMETHANE	6 U	6 U	6 U	7 U	6 U	6 U	6 U
1,1-DICHLOROETHANE	2.1 J	6 U	6 U	7 U	6 U	1.4 J	2 J
1,2-DICHLOROETHANE	6 U	6 U	6 U	7 U	6 U	6 U	6 U
1,1-DICHLOROETHENE	5.2 J	3.9 J	2.3 J	2.3 J	1.9 J	2.8 J	3.3 J
CIS-1,2-DICHLOROETHENE	81	23	59	57	24	33	160
TRANS-1,2-DICHLOROETHENE	6 U	6 U	6 U	7 U	6 U	6 U	2.1 J
1,2-DICHLOROPROPANE	6 U	6 U	6 U	7 U	6 U	6 U	6 U
CIS-1,3-DICHLOROPROPENE	6 U	6 U	6 U	7 U	6 U	6 U	6 U
TRANS-1,3-DICHLOROPROPENE	6 U	6 U	6 U	7 U	6 U	6 U	6 U
ETHYL BENZENE	6 U	6 U	6 U	7 U	6 U	6 U	6 U
2-HEXANONE	57 U	58 U	60 U	66 U	61 U	58 U	63 UJ
METHYL TERT-BUTYL ETHER	6 U	6 U	6 U	7 U	6 U	6 U	6 U
4-METHYL-2-PENTANONE	57 U	58 U	60 U	66 U	61 U	58 U	63 U
METHYLENE CHLORIDE	57 U	58 U	60 U	66 U	61 U	58 U	63 U
STYRENE	6 U	6 U	6 U	7 U	6 U	6 U	6 U
1,1,2,2-TETRACHLOROETHANE	6 U	6 U	6 U	7 U	6 U	6 U	6 U
TETRACHLOROETHENE	2 J	6 U	1.1 J	1.4 J	0.87 J	6 U	82
TOLUENE	6 U	6 U	6 U	7 U	6 U	6 U	6 U
1,1,2-TRICHLOROETHANE	6 U	6 U	6 U	7 U	6 U	6 U	6 U
1,1,1-TRICHLOROETHANE	6 U	6 U	6 U	7 U	6 U	6 U	6 U
TRICHLOROETHENE	400	420	95 J	160	130	250	130
VINYL ACETATE	57 U	58 U	60 U	66 U	61 U	58 U	63 U
VINYL CHLORIDE	6 U	6 U	6 U	7 U	6 U	6 U	3.5 J
XYLENES (TOTAL)	17 U	17 U	18 U	20 U	18 U	17 U	19 U
<b>TOC (Walkley-Black) (mg/kg)</b>							
<b>TOTAL ORGANIC CARBON</b>	<b>2000 U</b>	<b>2000 U</b>	<b>2000 U</b>	<b>2200</b>	<b>2000 U</b>	<b>2000 U</b>	<b>2000 U</b>

## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 4-2

**DIRECT PUSH TECHNOLOGY SOIL SAMPLE RESULTS**  
**FORMER NAS MOFFETT FIELD**  
**MOFFETT FIELD, CA**

Sample Number	86-WOPT-1071	86-WOPT-1072	86-WOPT-1073	86-WOPT-1074	86-WOPT-562	86-WOPT-563	86-WOPT-564
Sample Location	CPT-88-12	CPT-88-12	CPT-88-12	CPT-88-12	CPT-88-13	CPT-88-13	CPT-88-13
Sample Date	4/18/2005	4/18/2005	4/18/2005	4/18/2005	4/18/2005	4/18/2005	4/18/2005
Sample Depth (feet bgs)	24-25	31-32	47-48	54-55	8-9'	15-16	18-19
Analyte							
MOISTURE (PERCENT)	12.4	19.7	21.2	20.7	23.5	16.4	18.3
VOCs (EPA Method 8260B) ( $\mu\text{g/kg}$ )							
ACETONE	110 U	120 U	130 U	130 U	130 U	120 U	3.6 J
BENZENE	6 U	6 U	6 U	6 U	7 U	6 U	6 U
BROMODICHLOROMETHANE	6 U	6 U	6 U	6 U	7 U	6 U	6 U
BROMOFORM	6 U	6 U	6 U	6 U	7 U	6 U	6 U
BROMOMETHANE	11 U	12 U	13 U	13 U	13 U	12 U	12 U
2-BUTANONE	57 U	62 U	63 U	63 U	65 U	60 U	61 U
CARBON DISULFIDE	6 U	6 U	6 U	6 U	7 U	6 U	6 U
CARBON TETRACHLORIDE	6 U	6 U	6 U	6 U	7 U	6 U	6 U
CHLOROBENZENE	6 U	6 U	6 U	6 U	7 U	6 U	6 U
CHLOROETHANE	6 U	6 U	6 U	6 U	7 U	6 U	6 U
CHLOROFORM	6 U	6 U	6 U	6 U	7 U	6 U	6 U
CHLOROMETHANE	6 U	6 U	6 U	6 U	7 U	6 U	6 U
DIBROMOCHLOROMETHANE	6 U	6 U	6 U	6 U	7 U	6 U	6 U
1,1-DICHLOROETHANE	1.6 J	3 J	6 U	6 U	5.1 J	5.7 J	1.6 J
1,2-DICHLOROETHANE	6 U	6 U	6 U	6 U	7 U	6 U	6 U
1,1-DICHLOROETHENE	3 J	6.3	6 U	6 U	5.8 J	15	3.8 J
CIS-1,2-DICHLOROETHENE	130	220	6 U	6 U	700	3700 J	880 J
TRANS-1,2-DICHLOROETHENE	6 U	1.8 J	6 U	6 U	4.6 J	17	3.2 J
1,2-DICHLOROPROPANE	6 U	6 U	6 U	6 U	7 U	6 U	6 U
CIS-1,3-DICHLOROPROPENE	6 U	6 U	6 U	6 U	7 U	6 U	6 U
TRANS-1,3-DICHLOROPROPENE	6 U	6 U	6 U	6 U	7 U	6 U	6 U
ETHYL BENZENE	6 U	6 U	6 U	6 U	7 U	6 U	6 U
2-HEXANONE	57 UJ	62 UJ	63 UJ	63 UJ	65 UJ	60 UJ	61 UJ
METHYL TERT-BUTYL ETHER	6 U	6 U	6 U	6 U	7 U	6 U	6 U
4-METHYL-2-PENTANONE	57 U	62 U	63 U	63 U	65 U	60 U	61 U
METHYLENE CHLORIDE	57 U	62 U	63 U	63 U	65 U	60 U	61 U
STYRENE	6 U	6 U	6 U	6 U	7 U	6 U	6 U
1,1,2,2-TETRACHLOROETHANE	6 U	6 U	6 U	6 U	7 U	6 U	6 U
TETRACHLOROETHENE	9.8	18	6 U	6 U	7000 J	1200	3300 J
TOLUENE	6 U	6 U	6 U	6 U	7 U	6 U	6 U
1,1,2-TRICHLOROETHANE	6 U	6 U	6 U	6 U	7 U	6 U	6 U
1,1,1-TRICHLOROETHANE	6 U	6 U	6 U	6 U	7 U	6 U	6 U
TRICHLOROETHENE	54	300	6 U	6 U	770	120	400
VINYL ACETATE	57 U	62 U	63 U	63 U	65 U	60 U	61 U
VINYL CHLORIDE	6 U	2.3 J	6 U	6 U	7 U	2 J	6 U
XYLENES (TOTAL)	17 U	19 U	19 U	19 U	20 U	18 U	18 U
TOC (Walkley-Black) (mg/kg)							
TOTAL ORGANIC CARBON	2000 U	2000 U	2000 U	2000 U	1950 J	1100 J	2000 U



## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 4-2

**DIRECT PUSH TECHNOLOGY SOIL SAMPLE RESULTS**  
**FORMER NAS MOFFETT FIELD**  
**MOFFETT FIELD, CA**

Sample Number	86-WOPT-565	86-WOPT-566	86-WOPT-567	86-WOPT-1084	86-WOPT-1085	86-WOPT-1086	86-WOPT-1087
Sample Location	CPT-88-13	CPT-88-13	CPT-88-13	CPT-88-14	CPT-88-14	CPT-88-14	CPT-88-14
Sample Date	4/18/2005	4/18/2005	4/18/2005	4/19/2005	4/19/2005	4/19/2005	4/19/2005
Sample Depth (feet bgs)	29.5-30.5	39-40	59-60	10-11	26-27	33-34	38-39
<b>Analyte</b>							
<b>MOISTURE (PERCENT)</b>	<b>16.8</b>	<b>18.8</b>	<b>16.8</b>	<b>21.1</b>	<b>22.3</b>	<b>25.6</b>	<b>23</b>
<i>VOCs (EPA Method 8260B) (µg/kg)</i>							
ACETONE	120 U	120 U	120 U	130 U	130 U	130 U	130 U
BENZENE	6 U	6 U	6 U	6 U	6 U	7 U	7 U
BROMODICHLOROMETHANE	6 U	6 U	6 U	6 U	6 U	7 U	7 U
BROMOFORM	6 U	6 U	6 U	6 U	6 U	7 U	7 U
BROMOMETHANE	12 U	12 U	12 U	13 U	13 U	13 U	13 U
2-BUTANONE	60 U	62 U	60 U	63 U	64 U	67 U	65 U
CARBON DISULFIDE	6 U	6 U	6 U	6 U	6 U	7 U	7 U
CARBON TETRACHLORIDE	6 U	6 U	6 U	6 U	6 U	7 U	7 U
CHLOROBENZENE	6 U	6 U	6 U	6 U	6 U	7 U	7 U
CHLOROETHANE	6 U	6 U	6 U	6 U	6 U	7 U	7 U
CHLOROFORM	6 U	6 U	6 U	6 U	6 U	7 U	7 U
CHLOROMETHANE	6 U	6 U	6 U	6 U	6 U	7 U	7 U
DIBROMOCHLOROMETHANE	6 U	6 U	6 U	6 U	6 U	7 U	7 U
1,1-DICHLOROETHANE	1.5 J	6 U	6 U	6.2	1.9 J	7 U	2.8 J
1,2-DICHLOROETHANE	6 U	6 U	6 U	6 U	6 U	7 U	7 U
1,1-DICHLOROETHENE	3.4 J	2.9 J	6 U	5 J	3.5 J	2.1 J	8.7
CIS-1,2-DICHLOROETHENE	68	28	1.3 J	81	67	24	42
TRANS-1,2-DICHLOROETHENE	6 U	6 U	6 U	6 U	6 U	7 U	7 U
1,2-DICHLOROPROPANE	6 U	6 U	6 U	6 U	6 U	7 U	7 U
CIS-1,3-DICHLOROPROPENE	6 U	6 U	6 U	6 U	6 U	7 U	7 U
TRANS-1,3-DICHLOROPROPENE	6 U	6 U	6 U	6 U	6 U	7 U	7 U
ETHYL BENZENE	6 U	6 U	6 U	6 U	6 U	7 U	7 U
2-HEXANONE	60 U	62 U	60 U	63 U	64 U	67 U	65 U
METHYL TERT-BUTYL ETHER	6 U	6 U	6 U	6 U	6 U	7 U	7 U
4-METHYL-2-PENTANONE	60 U	62 U	60 U	63 U	64 U	67 U	65 U
METHYLENE CHLORIDE	60 U	62 U	60 U	63 U	64 U	67 U	65 U
STYRENE	6 U	6 U	6 U	6 U	6 U	7 U	7 U
1,1,2,2-TETRACHLOROETHANE	6 U	6 U	6 U	6 U	6 U	7 U	7 U
TETRACHLOROETHENE	580	4400 J	2700 J	3.3 J	3.8 J	0.89 J	7.6 J
TOLUENE	6 U	6 U	6 U	6 U	6 U	7 U	7 U
1,1,2-TRICHLOROETHANE	6 U	6 U	6 U	6 U	6 U	7 U	7 U
1,1,1-TRICHLOROETHANE	6 U	6 U	6 U	6 U	6 U	7 U	7 U
TRICHLOROETHENE	170	170	54	49	220	170	890
VINYL ACETATE	60 U	62 U	60 U	63 U	64 U	67 U	65 U
VINYL CHLORIDE	6 U	6 U	6 U	6 U	6 U	7 U	7 U
XYLENES (TOTAL)	18 U	18 U	18 U	19 U	19 U	20 U	19 U
<i>TOC (Walkley-Black) (mg/kg)</i>							
TOTAL ORGANIC CARBON	2000 U	2000 U	2000 U	2200	1650 J	1140 J	919 J

## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 4-2

**DIRECT PUSH TECHNOLOGY SOIL SAMPLE RESULTS**  
**FORMER NAS MOFFETT FIELD**  
**MOFFETT FIELD, CA**

Sample Number	86-WOPT-1088	86-WOPT-1089	86-WOPT-583	86-WOPT-584	86-WOPT-585	86-WOPT-586	86-WOPT-587
Sample Location	CPT-88-14	CPT-88-14	CPT-88-15	CPT-88-15	CPT-88-15	CPT-88-15	CPT-88-15
Sample Date	4/19/2005	4/19/2005	4/20/2005	4/20/2005	4/20/2005	4/20/2005	4/20/2005
Sample Depth (feet bgs)	43-44	46-47	10.5-11.5	17-18	26-27	36.5-37.5	44.5-45.5
Analyte							
MOISTURE (PERCENT)	34.1	21.5	25.7	20.1	24.2	19.6	17
VOCs (EPA Method 8260B) ( $\mu\text{g/kg}$ )							
ACETONE	150 U	130 U	130 U	7.5 J	130 U	120 U	120 U
BENZENE	8 U	6 U	7 U	6 U	7 U	6 U	6 U
BROMODICHLOROMETHANE	8 U	6 U	7 U	6 U	7 U	6 U	6 U
BROMOFORM	8 U	6 U	7 U	6 U	7 U	6 U	6 U
BROMOMETHANE	15 U	13 U	13 UJ	13 U	13 U	12 U	12 U
2-BUTANONE	76 U	64 U	67 U	63 U	65 U	62 U	60 U
CARBON DISULFIDE	8 U	6 U	7 U	6 U	7 U	6 U	6 U
CARBON TETRACHLORIDE	8 U	6 U	7 U	6 U	7 U	6 U	6 U
CHLOROBENZENE	8 U	6 U	7 U	6 U	7 U	6 U	6 U
CHLOROETHANE	8 U	6 U	7 U	6 U	7 U	6 U	6 U
CHLOROFORM	8 U	6 U	7 U	6 U	7 U	6 U	6 U
CHLOROMETHANE	8 U	6 U	7 U	6 U	7 U	6 U	6 U
DIBROMOCHLOROMETHANE	8 U	6 U	7 U	6 U	7 U	6 U	6 U
1,1-DICHLOROETHANE	8 U	6 U	16	40	2.5 J	2.3 J	6 U
1,2-DICHLOROETHANE	8 U	6 U	7 U	6 U	7 U	6 U	6 U
1,1-DICHLOROETHENE	5.2 J	5.6 J	25	120	13	7.5	2.7 J
CIS-1,2-DICHLOROETHENE	15	15	1100 J	3600 J	1200 J	100	8
TRANS-1,2-DICHLOROETHENE	8 U	6 U	6.1 J	18	3.8 J	6 U	6 U
1,2-DICHLOROPROPANE	8 U	6 U	7 U	6 U	7 U	6 U	6 U
CIS-1,3-DICHLOROPROPENE	8 U	6 U	7 U	6 U	7 U	6 U	6 U
TRANS-1,3-DICHLOROPROPENE	8 U	6 U	7 U	6 U	7 U	6 U	6 U
ETHYL BENZENE	8 U	6 U	7 U	6 U	7 U	6 U	6 U
2-HEXANONE	76 U	64 U	67 UJ	63 UJ	65 U	62 UJ	60 UJ
METHYL TERT-BUTYL ETHER	8 U	6 U	7 U	6 U	7 U	6 U	6 U
4-METHYL-2-PENTANONE	76 U	64 U	67 UJ	63 UJ	65 U	62 UJ	60 UJ
METHYLENE CHLORIDE	76 U	64 U	67 U	63 U	65 U	62 U	60 U
STYRENE	8 U	6 U	7 U	6 U	7 U	6 U	6 U
1,1,2,2-TETRACHLOROETHANE	8 U	6 U	7 U	6 U	7 U	6 U	6 U
TETRACHLOROETHENE	6.5 J	4.5 J	42 J	10 J	1.1 J	300	12
TOLUENE	8 U	6 U	7 U	6 U	7 U	6 U	6 U
1,1,2-TRICHLOROETHANE	8 U	6 U	7 U	6 U	7 U	6 U	6 U
1,1,1-TRICHLOROETHANE	8 U	6 U	7 U	6 U	7 U	6 U	6 U
TRICHLOROETHENE	1100 J	990 J	120 J	28	10	640	510
VINYL ACETATE	76 U	64 U	67 U	63 U	65 U	62 U	60 U
VINYL CHLORIDE	8 U	6 U	6.3 J	9	7 U	6 U	6 U
XYLENES (TOTAL)	23 U	19 U	20 U	19 U	20 U	19 U	18 U
TOC (Walkley-Black) (mg/kg)							
TOTAL ORGANIC CARBON	1490 J	1050 J	3170	4150	4700	1150 J	1180 J

## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 4-2

**DIRECT PUSH TECHNOLOGY SOIL SAMPLE RESULTS**  
**FORMER NAS MOFFETT FIELD**  
**MOFFETT FIELD, CA**

Sample Number	86-WOPT-588	86-WOPT-589	86-WOPT-1099	86-WOPT-1100	86-WOPT-1101	86-WOPT-1102	86-WOPT-1103
Sample Location	CPT-88-15	CPT-88-15	CPT-88-16	CPT-88-16	CPT-88-16	CPT-88-16	CPT-88-16
Sample Date	4/20/2005	4/20/2005	4/20/2005	4/20/2005	4/20/2005	4/20/2005	4/20/2005
Sample Depth (feet bgs)	50-51	58-59	8-9	14-15	22.5-23.5	32.5-33.5	35.5-36.5
<b>Analyte</b>							
<b>MOISTURE (PERCENT)</b>	<b>14.4</b>	<b>12.8</b>	<b>20.4</b>	<b>21.9</b>	<b>16.2</b>	<b>12.3</b>	<b>19.9</b>
<b>VOCs (EPA Method 8260B) (<math>\mu\text{g/kg}</math>)</b>							
ACETONE	120 U	110 U	130 U	5.9 J	5.5 J	5.3 J	120 U
BENZENE	6 U	6 U	0.9 J	6 U	6 U	6 U	6 U
BROMODICHLOROMETHANE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
BROMOFORM	6 U	6 U	6 U	6 UJ	6 U	6 U	6 U
BROMOMETHANE	12 U	11 U	13 U	13 U	12 U	11 U	12 U
2-BUTANONE	58 U	57 U	63 U	64 U	60 U	57 U	62 U
CARBON DISULFIDE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
CARBON TETRACHLORIDE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
CHLOROBENZENE	6 U	6 U	6 U	6 UJ	6 U	6 U	6 U
CHLOROETHANE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
CHLOROFORM	6 U	6 U	6 U	6 U	6 U	6 U	6 U
CHLOROMETHANE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
DIBROMOCHLOROMETHANE	6 U	6 U	6 U	6 UJ	6 U	6 U	6 U
1,1-DICHLOROETHANE	6 U	6 U	1.7 J	6 U	2.9 J	1.5 J	6 U
1,2-DICHLOROETHANE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
1,1-DICHLOROETHENE	3.5 J	3.4 J	6 U	6 U	6.5	3.7 J	6 U
CIS-1,2-DICHLOROETHENE	14	13	14	1.4 J	77	24	6 U
TRANS-1,2-DICHLOROETHENE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
1,2-DICHLOROPROPANE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
CIS-1,3-DICHLOROPROPENE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
TRANS-1,3-DICHLOROPROPENE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
ETHYL BENZENE	6 U	6 U	6 U	6 UJ	6 U	6 U	6 U
2-HEXANONE	58 UJ	57 UJ	63 UJ	64 UJ	60 UJ	57 UJ	62 UJ
METHYL TERT-BUTYL ETHER	6 U	6 U	6 U	6 U	6 U	6 U	6 U
4-METHYL-2-PENTANONE	58 UJ	57 UJ	63 UJ	64 UJ	60 UJ	57 UJ	62 UJ
METHYLENE CHLORIDE	58 U	57 U	63 U	64 U	60 U	57 U	62 U
STYRENE	6 U	6 U	6 U	6 UJ	6 U	6 U	6 U
1,1,2,2-TETRACHLOROETHANE	6 U	6 U	6 U	6 UJ	6 U	6 U	6 U
TETRACHLOROETHENE	9.5	81	6 U	6 UJ	6 U	6 U	6 U
TOLUENE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
1,1,2-TRICHLOROETHANE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
1,1,1-TRICHLOROETHANE	6 U	6 U	6 U	6 U	6 U	6 U	6 U
TRICHLOROETHENE	540	400	6 U	6 U	2 J	120	3 J
VINYL ACETATE	58 U	57 U	63 U	64 U	60 U	57 U	62 U
VINYL CHLORIDE	6 U	6 U	14	6 U	6 U	6 U	6 U
XYLENES (TOTAL)	18 U	17 U	19 U	19 UJ	18 U	17 U	19 U
<b>TOC (Walkley-Black) (mg/kg)</b>							
<b>TOTAL ORGANIC CARBON</b>	<b>2000 U</b>	<b>1530 J</b>	<b>2000 U</b>	<b>4430</b>	<b>1850 J</b>	<b>2000 U</b>	<b>1050 J</b>

## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 4-2

**DIRECT PUSH TECHNOLOGY SOIL SAMPLE RESULTS**  
**FORMER NAS MOFFETT FIELD**  
**MOFFETT FIELD, CA**

Sample Number	86-WOPT-1104	86-WOPT-1112	86-WOPT-1113	86-WOPT-1114	86-WOPT-1115	86-WOPT-1116	86-WOPT-1117
Sample Location	CPT-88-16	CPT-88-17	CPT-88-17	CPT-88-17	CPT-88-17	CPT-88-17	CPT-88-17
Sample Date	4/20/2005	4/21/2005	4/21/2005	4/21/2005	4/21/2005	4/21/2005	4/21/2005
Sample Depth (feet bgs)	49-50	9-10	14-15	20-21	33-34	50-51	57-58
Analyte							
MOISTURE (PERCENT)	19.1	20.8	19	18.2	21.2	15.5	23.8
VOCs (EPA Method 8260B) ( $\mu\text{g/kg}$ )							
ACETONE	120 U	130 U	120 U	120 U	130 U	120 U	130 U
BENZENE	6 U	6 U	6 U	6 U	6 U	6 U	7 U
BROMODICHLOROMETHANE	6 U	6 U	6 U	6 U	6 U	6 U	7 U
BROMOFORM	6 U	6 U	6 U	6 U	6 U	6 U	7 U
BROMOMETHANE	12 U	13 U	12 U	12 U	13 U	12 U	13 U
2-BUTANONE	62 U	63 U	62 U	61 U	63 U	59 U	66 U
CARBON DISULFIDE	6 U	6 U	6 U	6 U	6 U	6 U	7 U
CARBON TETRACHLORIDE	6 U	6 U	6 U	6 U	6 U	6 U	7 U
CHLOROBENZENE	6 U	6 U	6 U	6 U	6 U	6 U	7 U
CHLOROETHANE	6 U	6 U	6 U	6 U	6 U	6 U	7 U
CHLOROFORM	6 U	6 U	6 U	6 U	6 U	6 U	7 U
CHLOROMETHANE	6 U	6 U	6 U	6 U	6 U	6 U	7 U
DIBROMOCHLOROMETHANE	6 U	6 U	6 U	6 U	6 U	6 U	7 U
1,1-DICHLOROETHANE	6 U	7	6 U	1.5 J	6 U	6 U	7 U
1,1-DICHLOROETHANE	6 U	6 U	6 U	6 U	6 U	6 U	7 U
1,1-DICHLOROETHENE	6 U	6	4.2 J	2.5 J	1.3 J	6 U	7 U
CIS-1,2-DICHLOROETHENE	6 U	240	290	250	19	6 U	7 U
TRANS-1,2-DICHLOROETHENE	6 U	6 U	6 U	6 U	6 U	6 U	7 U
1,2-DICHLOROPROPANE	6 U	6 U	6 U	6 U	6 U	6 U	7 U
CIS-1,3-DICHLOROPROPENE	6 U	6 U	6 U	6 U	6 U	6 U	7 U
TRANS-1,3-DICHLOROPROPENE	6 U	6 U	6 U	6 U	6 U	6 U	7 U
ETHYL BENZENE	6 U	6 U	6 U	6 U	6 U	6 U	7 U
2-HEXANONE	62 U	63 U	62 U	61 U	63 U	59 U	66 U
METHYL TERT-BUTYL ETHER	6 U	6 U	6 U	6 U	6 U	6 U	7 U
4-METHYL-2-PENTANONE	62 U	63 U	62 U	61 U	63 U	59 U	66 U
METHYLENE CHLORIDE	62 U	63 U	62 U	61 U	63 U	59 U	66 U
STYRENE	6 U	6 U	6 U	6 U	6 U	6 U	7 U
1,1,2,2-TETRACHLOROETHANE	6 U	6 U	6 U	6 U	6 U	6 U	7 U
TETRACHLOROETHENE	6 U	6 U	6 U	6 U	6 U	6 U	7 U
TOLUENE	6 U	6 U	6 U	6 U	6 U	6 U	7 U
1,1,2-TRICHLOROETHANE	6 U	6 U	6 U	6 U	6 U	6 U	7 U
1,1,1-TRICHLOROETHANE	6 U	6 U	6 U	6 U	6 U	6 U	7 U
TRICHLOROETHENE	2.5 J	1.3 J	2.6 J	4.5 J	33	6 U	7 U
VINYL ACETATE	62 U	63 U	62 U	61 U	63 U	59 U	66 U
VINYL CHLORIDE	6 U	6 U	6 U	6 U	6 U	6 U	7 U
XYLENES (TOTAL)	19 U	19 U	19 U	18 U	19 U	18 U	20 U
TOC (Walkley-Black) (mg/kg)							
TOTAL ORGANIC CARBON	1080 J	1690 J	3960	3000	2000 U	1120 J	2330

## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 4-2

**DIRECT PUSH TECHNOLOGY SOIL SAMPLE RESULTS**  
**FORMER NAS MOFFETT FIELD**  
**MOFFETT FIELD, CA**

Sample Number	86-WOPT-1128	86-WOPT-1129	86-WOPT-1130	86-WOPT-1131	86-WOPT-1132	86-WOPT-1133
Sample Location	CPT-88-18	CPT-88-18	CPT-88-18	CPT-88-18	CPT-88-18	CPT-88-18
Sample Date	4/22/2005	4/22/2005	4/22/2005	4/22/2005	4/22/2005	4/22/2005
Sample Depth (in feet bgs)	8-9	14-15	20-21	24-25	30-31	43-44
Analyte						
% MOISTURE (PERCENT)	23.3	10.9	23.1	23.5	15.3	20.4
VOCs (EPA Method 8260B) (in µg/kg)						
ACETONE	130 UJ	110 U	130 UJ	130 UJ	120 UJ	130 UJ
BENZENE	7 U	6 U	7 U	7 U	6 U	6 U
BROMODICHLOROMETHANE	7 U	6 U	7 U	7 U	6 U	6 U
BROMOFORM	7 U	6 U	7 U	7 U	6 U	6 U
BROMOMETHANE	13 U	11 U	13 U	13 U	12 U	13 U
2-BUTANONE	65 U	56 U	65 U	65 U	59 U	63 U
CARBON DISULFIDE	7 U	6 U	7 U	7 U	6 U	6 U
CARBON TETRACHLORIDE	7 U	6 U	7 U	7 U	6 U	6 U
CHLOROBENZENE	7 U	6 UJ	7 U	7 U	6 U	6 U
CHLOROETHANE	7 U	6 U	7 U	7 U	6 U	6 U
CHLOROFORM	7 U	6 U	7 U	7 U	6 U	6 U
CHLOROMETHANE	7 U	6 U	7 U	7 U	6 U	6 U
DIBROMOCHLOROMETHANE	7 U	6 U	7 U	7 U	6 U	6 U
1,1-DICHLOROETHANE	1.9 J	6 U	7 U	7 U	6 U	6 U
1,2-DICHLOROETHANE	7 U	6 U	7 U	7 U	6 U	6 U
1,1-DICHLOROETHENE	4.5 J	6 U	7 U	7 U	6 U	6 U
CIS-1,2-DICHLOROETHENE	80	5.5 J	12	11	13	3.8 J
TRANS-1,2-DICHLOROETHENE	7 U	6 U	7 U	7 U	6 U	6 U
1,2-DICHLOROPROPANE	7 U	6 U	7 U	7 U	6 U	6 U
CIS-1,3-DICHLOROPROPENE	7 U	6 U	7 U	7 U	6 U	6 U
TRANS-1,3-DICHLOROPROPENE	7 U	6 U	7 U	7 U	6 U	6 U
ETHYL BENZENE	7 U	6 U	7 U	7 U	6 U	6 U
2-HEXANONE	65 U	56 U	65 U	65 U	59 U	63 U
METHYL TERT-BUTYL ETHER	7 U	6 U	7 U	7 U	6 U	6 U
4-METHYL-2-PENTANONE	65 U	56 U	65 U	65 U	59 U	63 U
METHYLENE CHLORIDE	65 U	56 U	65 U	65 U	59 U	63 U
STYRENE	7 U	6 U	7 U	7 U	6 U	6 U
1,1,2,2-TETRACHLOROETHANE	7 U	6 U	7 U	7 U	6 U	6 U
TETRACHLOROETHENE	7 U	6 U	7 U	7 U	6 U	0.95 J
TOLUENE	7 U	6 U	7 U	7 U	6 U	6 U
1,1,2-TRICHLOROETHANE	7 U	6 U	7 U	7 U	6 U	6 U
1,1,1-TRICHLOROETHANE	7 U	6 U	7 U	7 U	6 U	6 U
TRICHLOROETHENE	280	36	39	29	21	15
VINYL ACETATE	65 U	56 U	65 U	65 U	59 U	63 U
VINYL CHLORIDE	7 U	6 U	7 U	7 U	6 U	6 U
XYLENES (TOTAL)	20 U	17 U	20 U	20 U	18 U	19 U
Total Organic Carbon (Walkley-Black) (in mg/kg)						
CARBON, TOTAL ORGANIC (TOC)	2990	2000 U	2000 U	2000 U	2000 U	1190 J

**Notes:**

Bold - indicates value above method detection limit

**Abbreviations and Acronyms:**

µg/kg - micrograms per kilogram

bgs - below ground surface

CA - California

EPA - U.S. Environmental Protection Agency

J - estimated value

mg/kg - milligrams per kilogram

NAS - Naval Air Station

TOC - total organic carbon

U - not detected at or above the laboratory reporting limit (value indicates the reporting limit)

VOC - volatile organic compound

## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 4-2

**DIRECT PUSH TECHNOLOGY SOIL SAMPLE RESULTS**  
**FORMER NAS MOFFETT FIELD**  
**MOFFETT FIELD, CA**

Sample Number	86-WOPT-1134	86-WOPT-610	86-WOPT-611	86-WOPT-612	86-WOPT-613	86-WOPT-614
Sample Location	CPT-88-18	CPT-88-19	CPT-88-19	CPT-88-19	CPT-88-19	CPT-88-19
Sample Date	4/22/2005	4/22/2005	4/22/2005	4/22/2005	4/22/2005	4/22/2005
Sample Depth (in feet bgs)	55-56	6-7	11.5-12.5	18.5-19.5	23.5-24.5	28-29
Analyte						
% MOISTURE (PERCENT)	22.4	17.7	26.7	18.1	23.1	23.1
<i>VOCs (EPA Method 8260B) (in µg/kg)</i>						
ACETONE	130 UJ	120 UJ	140 UJ	120 UJ	130 UJ	130 UJ
BENZENE	6 U	6 U	7 U	6 U	7 U	7 U
BROMODICHLOROMETHANE	6 U	6 U	7 U	6 U	7 U	7 U
BROMOFORM	6 U	6 U	7 U	6 U	7 U	7 U
BROMOMETHANE	13 U	12 U	14 U	12 U	13 U	13 U
2-BUTANONE	64 U	61 U	68 U	61 U	65 U	65 U
CARBON DISULFIDE	6 U	6 U	7 U	6 U	7 U	7 U
CARBON TETRACHLORIDE	6 U	6 U	7 U	6 U	7 U	7 U
CHLORO BENZENE	6 U	6 U	7 U	6 U	7 U	7 U
CHLOROETHANE	6 U	6 U	7 U	6 U	7 U	7 U
CHLOROFORM	6 U	6 U	7 U	6 U	7 U	7 U
CHLOROMETHANE	6 U	6 U	7 U	6 U	7 U	7 U
DIBROMOCHLOROMETHANE	6 U	6 U	7 U	6 U	7 U	7 U
1,1-DICHLOROETHANE	6 U	6 U	11	6 U	7 U	2.2 J
1,2-DICHLOROETHANE	6 U	6 U	3.2 J	6 U	7 U	7 U
1,1-DICHLOROETHENE	6 U	2.7 J	4.3 J	1.1 J	7 U	4.1 J
CIS-1,2-DICHLOROETHENE	6 U	300	250	52	18	22
TRANS-1,2-DICHLOROETHENE	6 U	38	29	82	12	7 U
1,2-DICHLOROPROPANE	6 U	6 U	7 U	6 U	7 U	7 U
CIS-1,3-DICHLOROPROPENE	6 U	6 U	7 U	6 U	7 U	7 U
TRANS-1,3-DICHLOROPROPENE	6 U	6 U	7 U	6 U	7 U	7 U
ETHYL BENZENE	6 U	6 U	7 U	6 U	7 U	7 U
2-HEXANONE	64 U	61 U	68 U	61 U	65 U	65 U
METHYL TERT-BUTYL ETHER	6 U	6 U	7 U	6 U	7 U	7 U
4-METHYL-2-PENTANONE	64 U	61 UJ	68 UJ	61 U	65 U	65 U
METHYLENE CHLORIDE	64 U	61 U	68 U	61 U	65 U	65 U
STYRENE	6 U	6 U	7 U	6 U	7 U	7 U
1,1,2,2-TETRACHLOROETHANE	6 U	6 UJ	7 UJ	6 U	7 U	7 U
TETRACHLOROETHENE	6 U	540	21	1 J	7 U	1.4 J
TOLUENE	6 U	6 U	7 U	6 U	7 U	7 U
1,1,2-TRICHLOROETHANE	6 U	6 U	7 U	6 U	7 U	7 U
1,1,1-TRICHLOROETHANE	6 U	6 U	7 U	6 U	7 U	7 U
TRICHLOROETHENE	6 U	280	44	8	3.8 J	49
VINYL ACETATE	64 U	61 U	68 U	61 U	65 U	65 U
VINYL CHLORIDE	6 U	6 U	7 U	6 U	7 U	7 U
XYLENES (TOTAL)	19 U	18 U	20 U	18 U	20 U	20 U
<i>Total Organic Carbon (Walkley-Black) (in mg/kg)</i>						
CARBON, TOTAL ORGANIC (TOC)	2330	1600 J	3460	2260	2170	1320 J

**Notes:**

Bold - indicates value above method detection limit

**Abbreviations and Acronyms:**

µg/kg - micrograms per kilogram

bgs - below ground surface

CA - California

EPA - U.S. Environmental Protection Agency

J - estimated value

mg/kg - milligrams per kilogram

NAS - Naval Air Station

TOC - total organic carbon

U - not detected at or above the laboratory reporting limit (value indicates the reporting limit)

VOC - volatile organic compound

## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 4-2

**DIRECT PUSH TECHNOLOGY SOIL SAMPLE RESULTS**  
**FORMER NAS MOFFETT FIELD**  
**MOFFETT FIELD, CA**

Sample Number	86-WOPT-624	86-WOPT-625	86-WOPT-626	86-WOPT-627	86-WOPT-628	86-WOPT-629
Sample Location	CPT-88-20	CPT-88-20	CPT-88-20	CPT-88-20	CPT-88-20	CPT-88-20
Sample Date	5/2/2005	5/2/2005	5/2/2005	5/2/2005	5/2/2005	5/2/2005
Sample Depth (in feet bgs)	10-11	20-21	29-30	40-41	46-47	52-53
Analyte						
% MOISTURE (PERCENT)	20.8	15.9	19.2	19.7	22.5	19
<i>VOCs (EPA Method 8260B) (in µg/kg)</i>						
ACETONE	130 U	120 U	23 U	120 U	130 U	120 U
BENZENE	0 U	0 U	0 U	0 U	7 U	6 U
BROMODICHLOROMETHANE	0 U	0 U	0 U	6 U	7 U	6 U
BROMOFORM	6 U	6 U	6 U	6 U	7 U	6 U
BROMOMETHANE	13 U J	12 U J	12 U J	12 U J	13 U	12 U J
2-BUTANONE	63 U	59 U	62 U	62 U	65 U	62 U
CARBON DISULFIDE	0 U	0 U	0 U	0 U	7 U	6 U
CARBON TETRACHLORIDE	0 U	0 U	0 U	0 U	7 U	6 U
CHLORO BENZENE	0 U	0 U	0 U	6 U	7 U	6 U
CHLOROETHANE	6 U	6 U	6 U	6 U	7 U	6 U
CHLOROFORM	0 U	0 U	0 U	0 U	7 U	6 U
CHLOROMETHANE	0 U	6 U	0 U	6 U	7 U	6 U
DIBROMOCHLOROMETHANE	6 U	6 U	0 U	6 U	7 U	6 U
1,1-DICHLOROETHANE	6 U	6 U	0 U	1.7 J	7 U	6 U
1,2-DICHLOROETHANE	6 U	6 U	6 U	6 U	7 U	6 U
1,1-DICHLOROETHENE	6 U	6 U	6 U	4.1 J	2.5 J	6 U
CIS-1,2-DICHLOROETHENE	0 U	4.7 J	0 U	28	3.5 J	6 U
TRANS-1,2-DICHLOROETHENE	6 U	6 U	6 U	6 U	7 U	6 U
1,2-DICHLOROPROPANE	6 U	6 U	6 U	6 U	7 U	6 U
CIS-1,3-DICHLOROPROPENE	6 U	6 U	6 U	6 U	7 U	6 U
TRANS-1,3-DICHLOROPROPENE	6 U	6 U	6 U	6 U	7 U	6 U
ETHYL BENZENE	6 U	6 U	6 U	6 U	7 U	6 U
2-HEXANONE	63 U	59 U	62 U	62 U	65 U	62 U
METHYL TERT-BUTYL ETHER	6 U	6 U	6 U	6 U	7 U	6 U
4-METHYL-2-PENTANONE	63 U	59 U	62 U	62 U	65 U	62 U
METHYLENE CHLORIDE	63 U	59 U	62 U	62 U	65 U	62 U
STYRENE	0 U	0 U	0 U	6 U	7 U	6 U
1,1,2,2-TETRACHLOROETHANE	6 U	0 U	0 U	0 U	7 U	6 U
TETRACHLOROETHENE	1.6 J	0 U	6 U	16	23	6 U
TOLUENE	6 U	6 U	6 U	6 U	7 U	6 U
1,1,2-TRICHLOROETHANE	6 U	6 U	6 U	6 U	7 U	6 U
1,1,1-TRICHLOROETHANE	0 U	0 U	0 U	0 U	7 U	6 U
TRICHLOROETHENE	0 U	0 U	0 U	21	58	23
VINYL ACETATE	63 U	59 U	62 U	62 U	65 U	62 U
VINYL CHLORIDE	6 U	0 U	6 U	6 U	7 U	6 U
XYLENES (TOTAL)	19 U	18 U	19 U	19 U	19 U	19 U
Total Organic Carbon (Walkley-Black) (in mg/kg)						
CARBON, TOTAL ORGANIC (TOC)	2210	3430	2380	1030 J	1540 J	2780

**Notes:**

Bold - indicates value above method detection limit

**Abbreviations and Acronyms:**

µg/kg - micrograms per kilogram

bgs - below ground surface

CA - California

EPA - U.S. Environmental Protection Agency

J - estimated value

mg/kg - milligrams per kilogram

NAS - Naval Air Station

TOC - total organic carbon

U - not detected at or above the laboratory reporting limit (value indicates the reporting limit)

VOC - volatile organic compound

## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 4-2

**DIRECT PUSH TECHNOLOGY SOIL SAMPLE RESULTS**  
**FORMER NAS MOFFETT FIELD**  
**MOFFETT FIELD, CA**

Sample Number	86-WOPT-639	86-WOPT-640	86-WOPT-641	86-WOPT-642	86-WOPT-643	86-WOPT-644
Sample Location	CPT-88-21	CPT-88-21	CPT-88-21	CPT-88-21	CPT-88-21	CPT-88-21
Sample Date	5/3/2005	5/3/2005	5/3/2005	5/3/2005	5/3/2005	5/3/2005
Sample Depth (in feet bgs)	11-12	16-17	24-25	33-34	42-43	52-53
Analyte						
% MOISTURE (PERCENT)	19.1	21.5	26.3	25.4	20.4	22
<i>VOCs (EPA Method 8260B) (in µg/kg)</i>						
ACETONE	10 U	14 U	20 U	11 U	11 U	10 U
BENZENE	6 UJ	6 U	7 U	7 U	6 U	6 U
BROMODICHLOROMETHANE	6 U	6 U	7 U	7 U	6 U	6 U
BROMOFORM	6 U	6 U	7 U	7 U	6 U	6 U
BROMOMETHANE	12 UJ	13 UJ	14 UJ	13 UJ	13 UJ	13 UJ
2-BUTANONE	62 U	64 U	68 U	67 U	63 U	64 U
CARBON DISULFIDE	6 U	6 U	7 U	7 U	6 U	6 U
CARBON TETRACHLORIDE	6 U	6 U	7 U	7 U	6 U	6 U
CHLOROBENZENE	6 UJ	6 U	7 U	7 U	6 U	6 U
CHLOROETHANE	6 U	6 U	7 U	7 U	6 U	6 U
CHLOROFORM	6 U	6 U	7 U	7 U	6 U	6 U
CHLOROMETHANE	6 U	6 U	7 U	7 U	6 U	6 U
DIBROMOCHLOROMETHANE	6 U	6 U	7 U	7 U	6 U	6 U
1,1-DICHLOROETHANE	6 U	6 U	7 U	1.5 J	6 U	6 U
1,2-DICHLOROETHANE	6 U	6 U	7 U	7 U	6 U	6 U
1,1-DICHLOROETHENE	6 UJ	6 U	1.4 J	2.4 J	2.2 J	6 U
CIS-1,2-DICHLOROETHENE	12	3 J	330	18	3 J	6 U
TRANS-1,2-DICHLOROETHENE	6 U	6 U	7 U	7 U	6 U	6 U
1,2-DICHLOROPROPANE	6 U	6 U	7 U	7 U	6 U	6 U
CIS-1,3-DICHLOROPROPENE	6 U	6 U	7 U	7 U	6 U	6 U
TRANS-1,3-DICHLOROPROPENE	6 U	6 U	7 U	7 U	6 U	6 U
ETHYL BENZENE	6 U	6 U	7 U	7 U	6 U	6 U
2-HEXANONE	62 U	64 U	68 U	67 U	63 U	64 U
METHYL TERT-BUTYL ETHER	6 U	6 U	7 U	7 U	6 U	6 U
4-METHYL-2-PENTANONE	62 U	64 U	68 U	67 U	63 U	64 U
METHYLENE CHLORIDE	62 U	64 U	68 U	67 U	63 U	64 U
STYRENE	6 U	6 U	7 U	7 U	6 U	6 U
1,1,2,2-TETRACHLOROETHANE	6 U	6 U	7 U	7 U	6 U	6 U
TETRACHLOROETHENE	2.5 J	6.2	1.5 J	150	11	1.7 J
TOLUENE	6 UJ	6 U	7 U	7 U	6 U	6 U
1,1,2-TRICHLOROETHANE	6 U	6 U	7 U	7 U	6 U	6 U
1,1,1-TRICHLOROETHANE	6 U	6 U	7 U	7 U	6 U	6 U
TRICHLOROETHENE	5.5 J	3.3 J	2.7 J	28	33	4.7 J
VINYL ACETATE	62 U	64 U	68 U	67 U	63 U	64 U
VINYL CHLORIDE	6 U	6 U	7 U	7 U	6 U	6 U
XYLENES (TOTAL)	19 U	19 U	20 U	20 U	19 U	19 U
<i>Total Organic Carbon (Walkley-Black) (in mg/kg)</i>						
CARBON, TOTAL ORGANIC (TOC)	2050	4030	3750	1920 J	1950 J	2580

**Notes:**

Bold - indicates value above method detection limit

**Abbreviations and Acronyms:**

µg/kg - micrograms per kilogram

bgs - below ground surface

C.A. - California

EPA - U.S. Environmental Protection Agency

J - estimated value

mg/kg - milligrams per kilogram

NAS - Naval Air Station

TOC - total organic carbon

U - not detected at or above the laboratory reporting limit (value indicates the reporting limit)

VOC - volatile organic compound



## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 4-2

**DIRECT PUSH TECHNOLOGY SOIL SAMPLE RESULTS**  
**FORMER NAS MOFFETT FIELD**  
**MOFFETT FIELD, CA**

Sample Number	86-WOPT-653	86-WOPT-654	86-WOPT-655	86-WOPT-656	86-WOPT-657	86-WOPT-658
Sample Location	CPT-88-22	CPT-88-22	CPT-88-22	CPT-88-22	CPT-88-22	CPT-88-22
Sample Date	5/5/2005	5/5/2005	5/5/2005	5/5/2005	5/5/2005	5/5/2005
Sample Depth (in feet bgs)	12-13	19-20	25-26	35-36	47-48	52-53
Analyte						
% MOISTURE (PERCENT)	22.9	18	11.1	19.7	12.3	13.6
VOCs (EPA Method 8260B) (in µg/kg)						
ACETONE	130 U	120 U	110 U	120 U	110 U	120 U
BENZENE	7 U	6 U	6 U	6 U	6 U	6 U
BROMODICHLOROMETHANE	7 U	6 U	6 U	6 U	6 U	6 U
BROMOFORM	7 U	6 U	6 U	6 U	6 U	6 U
BROMOMETHANE	13 U	12 U	11 U	12 U	11 U	12 U
2-BUTANONE	65 U	61 U	56 U	62 U	57 U	58 U
CARBON DISULFIDE	7 U	6 U	6 U	6 U	6 U	6 U
CARBON TETRACHLORIDE	7 U	6 U	6 U	6 U	6 U	6 U
CHLORO BENZENE	7 U	6 U	6 U	6 U	6 U	6 U
CHLOROETHANE	7 U	6 U	6 U	6 U	6 U	6 U
CHLOROFORM	7 U	6 U	6 U	6 U	6 U	6 U
CHLOROMETHANE	7 U	6 U	6 U	6 U	6 U	6 U
DIBROMOCHLOROMETHANE	7 U	6 U	6 U	6 U	6 U	6 U
1,1-DICHLOROETHANE	20	6 U	6 U	4.2 J	6 U	6 U
1,2-DICHLOROETHANE	7 U	6 U	6 U	6 U	6 U	6 U
1,1-DICHLOROETHENE	43	14	2.1 J	6.9	1.8 J	1.5 J
CIS-1,2-DICHLOROETHENE	3100 J	2100 J	170	320	11	5.6 J
TRANS-1,2-DICHLOROETHENE	7.6	7.5	2.7 J	12	6 U	6 U
1,2-DICHLOROPROPANE	7 U	6 U	6 U	6 U	6 U	6 U
CIS-1,3-DICHLOROPROPENE	7 U	6 U	6 U	6 U	6 U	6 U
TRANS-1,3-DICHLOROPROPENE	7 U	6 U	6 U	6 U	6 U	6 U
ETHYL BENZENE	7 U	6 U	6 U	6 U	6 U	6 U
2-HEXANONE	65 U	61 U	56 U	62 U	57 U	58 U
METHYL TERT-BUTYL ETHER	7 U	6 U	6 U	6 U	6 U	6 U
4-METHYL-2-PENTANONE	65 U	61 U	56 U	62 U	57 U	58 U
METHYLENE CHLORIDE	65 U	61 U	56 U	62 U	57 U	58 U
STYRENE	7 U	6 U	6 U	6 U	6 U	6 U
1,1,2,2-TETRACHLOROETHANE	7 U	6 U	6 U	6 U	6 U	6 U
TETRACHLOROETHENE	6700	58	61	23	1.4 J	1.1 J
TOLUENE	7 U	6 U	6 U	6 U	6 U	6 U
1,1,2-TRICHLOROETHANE	7 U	6 U	6 U	6 U	6 U	6 U
1,1,1-TRICHLOROETHANE	7 U	6 U	6 U	6 U	6 U	6 U
TRICHLOROETHENE	2700 J	40	150	150	600	490 J
VINYL ACETATE	65 U	61 U	56 U	62 U	57 U	58 U
VINYL CHLORIDE	2.7 J	6 U	6 U	6 U	6 U	6 U
XYLENES (TOTAL)	19 U	18 U	17 U	19 U	17 U	17 U
Total Organic Carbon (Walkley-Black) (in mg/kg)						
CARBON, TOTAL ORGANIC (TOC)	2380	5380	2320	3400	2270	2850

**Notes:**

Bold - indicates value above method detection limit

**Abbreviations and Acronyms:**

µg/kg - micrograms per kilogram

bgs - below ground surface

CA - California

EPA - U.S. Environmental Protection Agency

J - estimated value

mg/kg - milligrams per kilogram

NAS - Naval Air Station

TOC - total organic carbon

U - not detected at or above the laboratory reporting limit (value indicates the reporting limit)

VOC - volatile organic compound

## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 4-2

**DIRECT PUSH TECHNOLOGY SOIL SAMPLE RESULTS**  
**FORMER NAS MOFFETT FIELD**  
**MOFFETT FIELD, CA**

Sample Number	86-WOPT-667	86-WOPT-668	86-WOPT-669	86-WOPT-670	86-WOPT-671	86-WOPT-672	86-WOPT-673
Sample Location	CPT-88-23	CPT-88-23	CPT-88-23	CPT-88-23	CPT-88-23	CPT-88-23	CPT-88-23
Sample Date	5/6/2005	5/6/2005	5/6/2005	5/6/2005	5/6/2005	5/6/2005	5/6/2005
Sample Depth (in feet bgs)	11-12	16-17	23-24	27.5-28.5	32-33'	48-49	52-53
Analyte							
% MOISTURE (PERCENT)	23.1	17.5	22.7	21.8	15.9	20.6	19.7
<i>VOCs (EPA Method 8260B) (in µg/kg)</i>							
ACETONE	130 U	120 U	130 U	130 U	120 U	130 U	120 U
BENZENE	7 UJ	6 U	7 U	6 U	6 U	6 U	6 U
BROMODICHLOROMETHANE	7 U	6 U	7 U	6 U	6 U	6 U	6 U
BROMOFORM	7 U	6 U	7 U	6 U	6 U	6 U	6 U
BROMOMETHANE	13 U	12 U	13 U	13 U	12 U	13 U	12 U
2-BUTANONE	65 U	61 U	65 U	64 U	59 U	63 U	62 U
CARBON DISULFIDE	7 U	6 U	7 U	6 U	6 U	6 U	6 U
CARBON TETRACHLORIDE	7 U	6 U	7 U	6 U	6 U	6 U	6 U
CHLOROBENZENE	7 UJ	6 U	7 U	6 U	6 U	6 U	6 U
CHLOROETHANE	7 U	6 U	7 U	6 U	6 U	6 U	6 U
CHLOROFORM	7 U	6 U	7 U	6 U	6 U	6 U	6 U
CHLOROMETHANE	7 U	6 U	7 U	6 U	6 U	6 U	6 U
DIBROMOCHLOROMETHANE	7 U	6 U	7 U	6 U	6 U	6 U	6 U
1,1-DICHLOROETHANE	8.6	3.3 J	1.6 J	6 U	6 U	6 U	6 U
1,2-DICHLOROETHANE	7 U	6 U	7 U	6 U	6 U	6 U	6 U
1,1-DICHLOROETHENE	22 J	7.3	2.9 J	1.3 J	6 U	6 U	6 U
CIS-1,2-DICHLOROETHENE	1100	260	25	10	3.5 J	6 U	6 U
TRANS-1,2-DICHLOROETHENE	4.3 J	6 U	7 U	6 U	6 U	6 U	6 U
1,2-DICHLOROPROPANE	7 U	6 U	7 U	6 U	6 U	6 U	6 U
CIS-1,3-DICHLOROPROPENE	7 U	6 U	7 U	6 U	6 U	6 U	6 U
TRANS-1,3-DICHLOROPROPENE	7 U	6 U	7 U	6 U	6 U	6 U	6 U
ETHYL BENZENE	7 U	6 U	7 U	6 U	6 U	6 U	6 U
2-HEXANONE	65 U	61 U	65 U	64 U	59 U	63 U	62 U
METHYL TERT-BUTYL ETHER	7 U	6 U	7 U	6 U	6 U	6 U	6 U
4-METHYL-2-PENTANONE	65 UJ	61 UJ	65 UJ	64 U	59 UJ	63 U	62 U
METHYLENE CHLORIDE	7.5 J	61 U	65 U	64 U	59 U	63 U	62 U
STYRENE	7 U	6 U	7 U	6 U	6 U	6 U	6 U
1,1,2,2-TETRACHLOROETHANE	7 UJ	6 UJ	7 U	6 U	6 UJ	6 U	6 U
TETRACHLOROETHENE	2.8 J	28	200	43	6	610	8.7
TOLUENE	7 UJ	6 U	7 U	6 U	6 U	6 U	6 U
1,1,2-TRICHLOROETHANE	7 U	6 U	7 U	6 U	6 U	6 U	6 U
1,1,1-TRICHLOROETHANE	7 U	6 U	7 UJ	6 U	6 U	6 U	6 U
TRICHLOROETHENE	22 J	350	86	29	5.1 J	7.4	6 U
VINYL ACETATE	65 U	61 U	65 U	64 U	59 U	63 U	62 U
VINYL CHLORIDE	7 U	6 U	7 U	6 U	6 U	6 U	6 U
XYLENES (TOTAL)	1.3 J	18 U	19 U	19 U	18 U	19 U	19 U
<i>Total Organic Carbon (Walkley-Black) (in mg/kg)</i>							
CARBON, TOTAL ORGANIC (TOC)	5230	1910 J	1720 J	1890 J	1410 J	1660 J	1660 J

**Notes:**

Bold - indicates value above method detection limit

**Abbreviations and Acronyms:**

µg/kg - micrograms per kilogram

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CA - California

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J - estimated value

mg/kg - milligrams per kilogram

NAS - Naval Air Station

TOC - total organic carbon

U - not detected at or above the laboratory reporting limit (value indicates the reporting limit)

VOC - volatile organic compound

- CPT-88-1 was located about 8 feet south of continuous soil core boring CC-88-2 in the Sump 66 area. The geologic interpretations correlate well, with one exception. A sand and gravelly sand interval from 23 to 26 feet bgs interpreted on the CPT lithologic log is described by the field geologist as silt with sand (ML) on the continuous soil core lithologic log. However, the field geologist's description of the continuous core includes a 0.5-foot-thick fine-to-coarse sand with silty sand interval (SW-SM) from 26 to 26.5 feet bgs. The difference is likely due to a change in the depositional/erosional environment over the distance between the soil core and CPT boring.
- CPT-88-3 was located 8 feet southeast of continuous soil core boring CC-88-3 in the northern excavation area of the Building 88 footprint. Fine-grained geologic interpretations correlated well. However, the continuous soil core, logged by the field geologist as fine sand (SP) from approximately 14 to 15 feet bgs and 18 to 20 feet bgs, and as fine-to-coarse sand with gravel (SW) from 25 to 27 feet bgs, were interpreted as silt on the CPT lithologic log. Although these intervals were interpreted as silt on the CPT lithologic log, the three intervals had slightly elevated cone bearing readings and zero pore water pressure measurements (see the CPT data), which are usually indicators of more permeable soil, such as sand. The sandy soil (SW) between approximately 41 and 48 feet bgs appeared on both the field geologist's description of the continuous soil core and the CPT lithologic logs.
- CPT-88-6 was located 20 feet west of continuous soil core boring CC-88-1, hydraulically downgradient of the Building 88 footprint. The fine- and coarse-grained soils correlate well on both logs, with the following exceptions. Silty sand to sand and gravel (SM to SP), described by the field geologist in the continuous soil core between 13.5 and 16.5 feet bgs, 33 and 36 feet bgs, and 51 to 52.5 feet bgs, are interpreted as silt and clayey silt on the CPT lithologic logs. The distance between the CPT boring and continuous core location (20 feet apart) is the greatest of the five CPT/continuous soil core pairs. The difference is likely due to a change in the depositional/erosional environment over the distance between the soil core and CPT boring.
- CPT-88-9 was located 4 feet west of continuous soil core boring CC-88-5 in the southern remedial excavation area of the Building 88 footprint. No comparison is possible in the upper section of the borings, as a core was not recovered from 5 to 24 feet bgs. The initial 5-foot core (from 5 to 10 feet bgs) was plugged due to backfill/construction debris blocking the barrel. Within the 10- to 24-foot depth at CC-88-5, several options were attempted to increase core recovery, such as (1) changing the "sand catcher" at the end of the core barrel, (2) changing the core barrel length from 5 feet to 2.5 feet, and (3) loading the boring with water to prevent sand heave. These steps did not improve core recovery in this particular zone. CPT fine-grained soil correlates well on both lithologic logs. Two sand intervals from 42 to 44 feet bgs (SP) and 48 to 49 feet bgs (SW) were detected in both lithologic logs, showing a good correlation with respect to coarse-grained lithology below 40 feet bgs.

- CPT-88-10 was located 8 feet south of continuous soil core boring CC-88-4 in the Tank 68 area. The CPT and continuous soil core lithologic logs correlate well. A gravely sand interval from 23 to 26 feet bgs on the CPT lithologic log correlates to a zone of no recovery on the field geologist's continuous core lithologic log. A gravely sand interval (SW), beginning at 41 feet bgs, was recorded on both lithologic logs. The soil core from 42.5 to 49 feet bgs was not recovered and was estimated by the field geologist to be coarse-grained soil.

CPT logs were included in Appendix E.

### 4.3.2 Groundwater and Soil Analytical Results

A summary of the groundwater VOC, anion, and cation analytical results were included in Table 4-1. A summary of the soil VOC and TOC results were included in Table 4-2. Laboratory analytical results reports were included in Appendix B. Groundwater and soil sample quality is described in Section 7.0.

Sample analytical results indicated the presence of two potential continuing PCE source areas (interpreted as soil PCE concentrations greater than 480 micrograms per kilograms [ $\mu\text{g/kg}$ ]). The U.S. Environmental Protection Agency (EPA) Region 9 residential soils Preliminary Remediation Goal (PRG) of 480  $\mu\text{g/kg}$  for PCE was used for the site screening value for soils. The residential soil PRG's role in site screening was to help identify areas that may require further attention. The residential soils PRG for PCE is slightly lower than the cleanup level identified in the Middlefield-Ellis-Whisman Record of Decision (soil remediation standard for PCE of 100 times the corresponding groundwater value of 5  $\mu\text{g/L}$  – 500  $\mu\text{g/kg}$ ). The two potential continuing source areas included along the sewer line in the traffic island area at the intersection of Wescoat Road and Cummins Avenue (locations CPT-88-13, CPT-88-23, and CPT-88-19), and the northern and eastern portion of the Building 88 footprint (locations CPT-88-1, CPT-88-3, and CPT-88-22) (see Figures 4-1 and 4-2). The maximum soil PCE concentration of 7,000  $\mu\text{g/kg}$  was detected in a soil sample from the DPT boring at location CPT-88-13 between 8 and 9 feet bgs. The maximum groundwater PCE concentration of 15,000 micrograms per liter ( $\mu\text{g/L}$ ) was detected in a groundwater sample from the DPT boring at location CPT-88-13 between 17 and 19 feet bgs. Potential source areas and contaminant distribution are described in Section 9.0.

Groundwater PCE concentrations in areas other than the Building 88 footprint and along the sewer alignment ranged from below the laboratory reporting limit of 0.5  $\mu\text{g/L}$  to an estimated concentration of 2,100  $\mu\text{g/L}$  in a groundwater sample from the DPT boring at location CPT-88-15 between 56 and 59 feet bgs, located about 25 feet hydraulically downgradient from the eastern portion of the Building 88 footprint. Soil PCE concentrations in areas other than the Building 88 footprint and along the sewer alignment ranged from below the laboratory reporting

limit of 6 µg/kg to 300 µg/kg in a soil sample from the DPT boring at location CPT-88-15 between 36.5 and 37.5 feet bgs. In areas other than the Building 88 footprint and along the sewer alignment, soil PCE concentrations were most often at, or less than, the laboratory reporting limit of 6 µg/kg. Contaminant distribution, fate, and transport are described in Section 9.0. Chemical oxidation treatability test results and biological treatability results are described in Section 10.0.

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## **5.0 GROUNDWATER MONITORING WELL INSTALLATION**

This section provides a summary of the objective, activities, and results of the installation of B2 aquifer zone groundwater monitoring wells.

### **5.1 GROUNDWATER MONITORING WELL INSTALLATION OBJECTIVE**

The objective of groundwater monitoring well installation was to determine if tetrachloroethene (PCE) concentrations impact the B2 aquifer zone. Evaluation of potential PCE impacts to the B2 aquifer zone was not an original Data Quality Objective, but was implemented because of PCE concentrations detected in a groundwater sample collected from the bottom of the A aquifer. Soil and groundwater PCE concentrations in the bottom samples (a depth of about 60 feet below ground surface [bgs]) from the direct push technology (DPT) boring at location CPT-88-13 (the traffic island at the intersection of Cummins Avenue, Wescoat Road, and Cody Road) were estimated at 2,700 micrograms per kilogram ( $\mu\text{g}/\text{kg}$ ) and 2,000 micrograms per liter ( $\mu\text{g}/\text{L}$ ), respectively.

### **5.2 GROUNDWATER MONITORING WELL INSTALLATION ACTIVITIES**

The activities associated with conducting groundwater monitoring well installation were the following:

- Geophysical survey for underground utilities, as required
- Drilling (using a sonic drill rig) to collect a continuous core
- Logging the core by a field geologist
- Soil sampling of select intervals for VOCs and total organic carbon (TOC) analysis
- Monitoring well construction
- Monitoring well development
- Site restoration and surveying

B2 aquifer zone monitoring well W88-1 was drilled and installed at location CPT-88-13 because of the detected PCE concentrations at 60 feet bgs (considered to be the bottom of the A aquifer), and the lack of a B2 aquifer zone monitoring wells located immediately downgradient of this location. Two additional B2 aquifer zone monitoring wells were installed generally hydraulically downgradient of location CPT-88-13, one located to the north of Hangar I (W88-2) and the other located in a parking lot on the northwest corner of Severyns Avenue and North Akron Road (W88-3) (Figure 5-1). The new B2 aquifer zone groundwater monitoring wells were installed between July 26 and August 3, 2005.

Lithologic symbols used in the following sections are based on the Unified Soils Classification System (USCS), as described in *Visual Classification of Soil* (Bureau of Reclamation, 1986) and the *2000 Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)* (American Society for Testing and Materials D2488-00). Lithology of cone penetrometer testing (CPT) lithologic logs are not based on the Unified Soil Classification System USCS; thus a USCS lithologic symbol is not applied.

## 5.2.1 Monitoring Well Drilling

A sonic drill rig was used to drill the borings for the three new B2 aquifer zone monitoring wells. For monitoring well W88-1, the backfilled CPT boring CPT-88-13 was over-drilled to the total depth of the CPT boring (60 feet bgs) using a nominal 9-inch-diameter drill pipe. The CPT lithologic log for location CPT-88-13 (see Appendix E) at 60 feet bgs showed a gravelly sand grading to a sandy silt (permeable material) at the bottom of the boring. The 9-inch drill pipe was advanced to 67 feet bgs. The soil core from 65 to 67 feet bgs was logged by the field geologist as a clay (CL) (see Appendix D). The soil core was logged by the same California Professional Geologist that logged the augered soil cores (see Section 3.0). In order to prevent potential drag-down of the overlying contaminated soils and groundwater, the bottom 5 feet of the drill pipe was filled with bentonite chips. The nominal 9-inch drill pipe was then pulled back 5 feet, and the bentonite chips were allowed to hydrate for 60 minutes. The nominal 9-inch drill pipe was then pushed ahead to a depth of 68 feet bgs (1 foot ahead of the previous open borehole). This procedure smeared bentonite on the outside of the nominal 9-inch drill pipe and seated the drill pipe into the undisturbed soils. The inside of the nominal 9-inch drill pipe was cleaned out of soil and groundwater, and drilling proceeded using a nominal 8-inch drill pipe. Drilling and lithologic logging proceeded to select the appropriate depth for setting the well screen. Soil samples for the lower portion of the borings for the new B2 aquifer zone monitoring wells were collected from the roto-sonic continuous core. Intervals of potential interest were collected into plastic bag and placed on ice. The material collected ranged in intervals of core from 0.5 foot to 2.5 feet. Latter, after logging, sample intervals were selected for analysis. An En Core<sup>®</sup> sampler was then pushed into the soils within the bag to collect the sample analysis. Soil samples were collected from the soil core at depths of 70 to 70.5 feet bgs and at 73 to 73.5 feet bgs. Drilling was terminated at a total depth of 97 feet bgs. The boring log was provided in Appendix D. Soil sample analytical results are included in Table 5-1.

For monitoring well W88-2, the decommissioned CPT boring WO-CPT2 (used to locate extraction well EA2-3 [see Appendix E for CPT lithologic log]) was over-drilled to the total depth of the CPT boring (65 feet bgs) using nominal 9-inch-diameter drill pipe. The CPT lithologic log for location WO-CPT2 at 62 to 64 feet bgs showed a clay soil. The 9-inch drill pipe was advanced to 62 feet bgs. In order to prevent the drag-down of the overlying potentially



# **LEGEND**

- NEW BZ MONITORING WELL LOCATION
- MANHOLE
- SANITARY SEWER
- BUILDING AND BUILDING NUMBER



BASE RELINQUISHMENT AND CLOSURE  
PROGRAM MANAGEMENT OFFICE WEST  
SAN DIEGO, CA

FORMER BUILDING 88 INVESTIGATION REPORT  
FIGURE S-1

NEW BZ ADJUTANT ZONE MONITORING WELL LOCATIONS  
FORMER NAS MOFFETT FIELD

REVISION 1  
AUTHOR: JLS  
FILE NUMBER: WMB001-17-000



# FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 5-1

## B2 AQUIFER SOIL SAMPLE RESULTS FORMER NAS MOFFETT FIELD MOFFETT FIELD, CA

Sample Number	86-WOPT-124	86-WOPT-125	86-WOPT-133	86-WOPT-137	86-WOPT-138
Sample Location	W88-1	W88-1	W88-2	W88-3	W88-3
Sample Date	7/27/2005	7/27/2005	7/29/2005	8/2/2005	8/2/2005
Sample Depth (feet bgs)	70-70.5	73-73.5	77-79.5	62-64	86-87
<b>Analyte</b>					
<i>VOCs (EPA Method 8260B) ( µg/kg)</i>					
ACETONE	100 U	100 U	120 U	6500 U	6000 U
BENZENE	5 U	5 U	6 U	330 U	300 U
BROMODICHLOROMETHANE	5 U	5 U	6 U	330 U	300 U
BROMOFORM	5 U	5 U	6 U	330 U	300 U
BROMOMETHANE	10 U	10 U	12 U	650 U	600 U
2-BUTANONE	50 U	50 U	62 U	3300 U	3000 U
CARBON DISULFIDE	5 U	5 U	6 U	330 U	300 U
CARBON TETRACHLORIDE	5 U	5 U	6 U	330 U	300 U
CHLOROBENZENE	5 U	5 U	6 U	330 U	300 U
CHLOROETHANE	5 U	5 U	6 U	330 U	300 U
CHLOROFORM	5 U	5 U	6 U	330 U	300 U
CHLOROMETHANE	5 U	5 U	6 U	330 U	300 U
DIBROMOCHLOROMETHANE	5 U	5 U	6 U	330 U	300 U
1,1-DICHLOROETHANE	5 U	5 U	6 U	330 U	300 U
1,2-DICHLOROETHANE	5 U	5 U	6 U	330 U	300 U
1,1-DICHLOROETHENE	<b>8.7</b>	<b>2.3 J</b>	6 U	330 U	300 U
CIS-1,2-DICHLOROETHENE	<b>18</b>	<b>6</b>	6 U	330 U	300 U
TRANS-1,2-DICHLOROETHENE	<b>6.8</b>	<b>1.8 J</b>	6 U	330 U	300 U
1,2-DICHLOROPROPANE	5 U	5 U	6 U	330 U	300 U
CIS-1,3-DICHLOROPROPENE	5 U	5 U	6 U	330 U	300 U
TRANS-1,3-DICHLOROPROPENE	5 U	5 U	6 U	330 U	300 U
ETHYL BENZENE	5 U	5 U	6 U	330 U	300 U
2-HEXANONE	50 U	50 U	62 U	3300 U	3000 U
METHYL TERT-BUTYL ETHER	5 U	5 U	6 U	330 U	300 U
4-METHYL-2-PENTANONE	50 U	50 U	62 U	3300 U	3000 U
METHYLENE CHLORIDE	50 U	50 U	62 U	700 J	3000 U
STYRENE	5 U	5 U	6 U	330 U	300 U
1,1,2,2-TETRACHLOROETHANE	5 U	5 U	6 U	330 U	300 U
TETRACHLOROETHENE	<b>10000</b>	<b>8700</b>	<b>0.81 J</b>	330 U	300 U
TOLUENE	5 U	5 U	6 U	330 U	300 U
1,1,2-TRICHLOROETHANE	5 U	5 U	6 U	330 U	300 U
1,1,1-TRICHLOROETHANE	5 U	5 U	6 U	330 U	300 U
TRICHLOROETHENE	<b>1900</b>	<b>1300</b>	6 U	<b>230 J</b>	300 U
VINYL ACETATE	50 U	50 U	62 U	3300 U	3000 U
VINYL CHLORIDE	5 U	5 U	6 U	330 U	300 U
XYLENES (TOTAL)	15 U	15 U	18 U	980 U	890 U

### Notes:

Bold - indicates value above method detection limit

### Abbreviations and Acronyms:

µg/kg - micrograms per kilogram

bgs - below ground surface

CA - California

EPA - U.S. Environmental Protection Agency

J - estimated value

NAS - Naval Air Station

U - not detected at or above the laboratory reporting limit (value indicates the reporting limit)

VOC - volatile organic compound

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contaminated soils and groundwater, the same step-down casing procedures were followed as described previously for drilling of the boring for monitoring well W88-1. A soil sample was collected from the soil core as described previously for soil sampling at monitoring well W88-1 at a depth of 77 to 79.5 feet bgs. Drilling was terminated at a total depth of 97 feet bgs. The boring lithologic log is provided in Appendix D. Soil sample analytical results are included in Table 5-1.

For monitoring well W88-3, the boring was continuously logged from land surface, since there was no CPT lithologic log at this location. A 9-inch drill pipe was advanced to 62 feet bgs, where a clay (CL) soil was encountered. In order to prevent the drag-down of the overlying potentially contaminated soils and groundwater, the same step-down casing procedures were followed as described previously for drilling of the borings for monitoring wells W88-1 and W88-2. Soil samples were collected from the soil core as described previously for soil sampling at monitoring well W88-1 at depths of 62 to 64 feet bgs and at 86 to 87 feet bgs. Drilling was terminated at a total depth of 97 feet bgs. The boring lithologic log is provided in Appendix D. Soil sample analytical results are included in Table 5-1.

## **5.2.2 Monitoring Well Construction**

Monitoring well W88-1 was constructed inside the drill pipe. For monitoring well W88-1, the bottom of the borehole from 84 to 97 feet bgs was backfilled with bentonite chips, as the nominal 8-inch drill pipe was withdrawn. A 10-foot-long, nominal 4-inch-diameter, 10-slot (0.01-inch), wire-wrapped, stainless steel well screen was set between the depths of 72 and 82 feet bgs (the depth interval with the most permeable soils – see boring lithologic log in Appendix D). Centralizers were placed below and above the well screen. A nominal 4-inch-diameter stainless-steel riser pipe was used to complete the well to the surface. A third centralizer was placed at a depth of about 50 feet bgs on the riser pipe. Filter material (#2/16 sand) was tremied around the screen interval, and 1.7 feet below and 2 feet above the screen, as the nominal 8-inch drill pipe was withdrawn. A 5-foot-thick bentonite seal was placed above the filter material, as the nominal 8-inch drill pipe was withdrawn. The nominal 8-inch drill pipe was completely removed from the boring. Then the nominal 9-inch drill pipe was pulled a couple of feet, allowing groundwater to hydrate the bentonite seal for 1 hour. Cement-bentonite grout was used to fill the remainder of the annular space to land surface, as the nominal 9-inch drill pipe was withdrawn. The surface completion was a flush-mounted, traffic-rated protective cover. A detailed monitoring well construction figure is provided on the well log in Appendix D.

Monitoring well W88-2 was constructed inside the drill pipe. For monitoring well W88-2, the bottom of the borehole from 89 to 97 feet bgs was backfilled with bentonite chips, as the nominal 8-inch drill pipe was withdrawn. A 10-foot-long well screen, similar to the well screen set in monitoring well W88-1, was set between the depths of 77 and 87 feet bgs (the depth interval with the most permeable soils – see boring lithologic log in Appendix D). The remainder of the

construction for monitoring well W88-2 was similar to the construction for monitoring well W88-1. A detailed monitoring well construction figure is provided on the well log in Appendix D.

Monitoring well W88-3 was constructed inside the drill pipe. For monitoring well W88-3, the bottom of the borehole from 89 to 97 feet bgs was backfilled with bentonite chips, as the nominal 8-inch drill pipe was withdrawn. A 10-foot-long well screen was set between the depths of 79 and 89 feet bgs (the depth interval with the most permeable soils – see boring lithologic log in Appendix D). The remainder of the construction for monitoring well W88-3 was similar to the construction for monitoring well W88-1. A detailed monitoring well construction figure is provided on the well log in Appendix D.

### **5.2.3 Monitoring Well Development**

The new B2 aquifer zone monitoring wells were developed between August 15 and 16, 2005. The monitoring wells were initially bailed to clean out any material in the bottom of the well screen using a bottom-suction bailer. Then the well screen interval was surged with a surge block. Accumulated material was removed by bailer. Finally, a submersible pump was installed just above the screen interval and the well was pumped. This surging, bailing, and pumping cycle was repeated as necessary until the field parameters stabilized, as follows:

- No visible change in the appearance of discharge water, or turbidity stabilized to less than 50 nephelometric turbidity units
- Temperature was within  $\pm 1$  degree Celsius for consecutive readings
- Conductivity was within  $\pm 5$  percent micromhos per centimeter for consecutive readings
- pH was within  $\pm 0.2$  units for consecutive readings

Well development logs for the new B2 aquifer zone monitoring wells are provided in Appendix D.

## **5.3 MONITORING WELL INSTALLATION RESULTS**

It was intended to install monitoring wells W88-1, W88-2, and W88-3 into the top of the B2 aquifer zone. All three groundwater monitoring wells were completed in permeable materials below clay or clayey layers beneath the assumed base of the A aquifer. However, a clear boundary between the A aquifer and the B2 aquifer zone has not been defined. Monitoring wells W88-1, W88-2, and W88-3 are screened in permeable soils about 10 feet higher in elevation than the other local B2 aquifer zone monitoring wells (51B2, W9-12, W9-15, 123B2, and W9-11). Based on a comparison of groundwater sample results (see Sections 4.0 and 6.0) and groundwater elevation data from the new monitoring wells and the 2004 annual sampling event (Tetra Tech FW, Inc., 2005b), it is possible to draw the following conclusions:

- Monitoring well W88-1 was completed in an area of high PCE concentrations (2,000 µg/L), high concentrations of trichloroethene (TCE) (estimated at 1,100 µg/L), and low concentrations of cis-1,2-dichloroethene (cis-1,2-DCE) (9.5 µg/L) at the bottom of the A aquifer at CPT/DPT-88-13 (see Table 4-1). The groundwater sample collected from monitoring well W88-1 in August 2005, contained low concentrations of PCE (69 µg/L), TCE (estimated at 20 µg/L), and high concentrations of cis-1,2-DCE (10,000 µg/L). The significant difference in chemical concentration suggests hydraulic isolation from the overlying A aquifer. Monitoring well W88-1 water level data were compared to water level data from nearby lower A aquifer monitoring well W9-42. Water levels differed by nearly 3 feet.

Based on the W88-1 completion depth, the difference in chemical concentrations for the sample collected from W88-1 and the HydroPunch® sample collected from the bottom of the A aquifer at CPT/DPT-88-13, and the difference in water levels, monitoring well W88-1 was completed in the B2 aquifer zone.

- Monitoring well W88-2 was completed in an area of low concentrations of TCE and cis-1,2-DCE (each less than 10 µg/L) in the lower A aquifer. The groundwater sample from monitoring well W88-2 contained low concentrations of TCE (7.2 µg/L) and cis-1,2-DCE (estimated at 0.28 µg/L). The similarity in the TCE and cis-1,2-DCE concentrations in the lower A aquifer and in the groundwater sample from well W88-2 does not distinguish the completion zone. Monitoring well W88-2 water level data were compared to water level data from nearby lower A aquifer monitoring wells and B2 aquifer zone monitoring wells. Water level data comparison does not distinguish the completion zone for well W88-2.

Based on well completion depth, it is assumed that monitoring well W88-2 was completed in the B2 aquifer zone.

- Monitoring well W88-3 was completed in an area of high concentrations of TCE (greater than 1,000 µg/L) and moderate concentrations of cis-1,2-DCE (greater than 100 µg/L) in the lower A aquifer. The groundwater sample from monitoring well W88-3 contained low concentrations of TCE (7.3 µg/L) and cis-1,2-DCE (5.3 µg/L). Monitoring well W88-3 water level data were compared to water level data from nearby lower A aquifer monitoring wells and B2 aquifer zone monitoring wells. Water level data comparison does not distinguish the completion zone for well W88-3.

Based on well completion depth and the significant differences in the TCE and cis-1,2-DCE concentrations in the lower A aquifer and in groundwater sample from well W88-3, monitoring well W88-3 was completed in the B2 aquifer zone.

Newly installed monitoring wells MW88-1, MW88-2, and MW88-3 are considered to be completed in the B2 aquifer zone.

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## 6.0 GROUNDWATER MONITORING WELL SAMPLING

This section provides a summary of the objective, activities, and results of activities associated with groundwater monitoring well sampling.

### 6.1 MONITORING WELL SAMPLING OBJECTIVES

The objective of the sampling at existing groundwater monitoring wells located downgradient of the former Building 88 was to answer Data Quality Objective Decision Question No.1 in the Sampling and Analysis Plan to the *Final West-Side Aquifers Treatment System [WATS] Optimization Work Plan Addendum 1* (Tetra Tech FW, Inc. [TtFW], 2005a): Is tetrachloroethene (PCE) detected above action levels for groundwater samples hydraulically downgradient of the potential source area? Specific targets were:

- Evaluate PCE concentration and distribution.
- Evaluate biological bait traps ([biotrap] a passive in-well biological growth medium) for substrate screening to support remedial alternative analysis.

### 6.2 MONITORING WELL SAMPLING FIELD ACTIVITIES

Activities associated with monitoring well sampling included the following:

- Purging select monitoring wells
- Collecting groundwater samples for volatile organic compound (VOC), anion, and cation analyses
- Installing and collecting biotrap

Eighteen groundwater monitoring wells were sampled in accordance with the *Final West-Side Aquifers Treatment System Optimization Work Plan Addendum 1* (TtFW, 2005a) and a field change, based on PCE concentrations detected at the total depth investigated in the traffic island. Monitoring well locations are shown on Figure 6-1. Sampled wells included 14D29A, 14D30A, W1C-1, W29-3, W29-4, W9-23, W9-46, and W9-6, screened in the upper portion of the A aquifer; W9-20, W9SC-15, and W9SC-3 screened in the lower portion of the A aquifer; and 51B2, W9-11, W9-12, W9-15, W88-1, W88-2, and W88-3 screened in the B2 aquifer zone.

#### 6.2.1 Monitoring Well Purging and Sampling

Groundwater monitoring wells were purged and sampled on April 27 and 28, 2005, except for W88-1, W88-2, and W88-3, which were purged and sampled on August 22, 2005. The PCE concentrations in samples collected from groundwater monitoring wells in April and August



2005, are shown on Figure 6-2. Groundwater monitoring wells W88-1, W88-2, W88-3, W9-12, and W9-15 were purged and sampled again on December 6 and 9, 2005.

The depth to groundwater in all monitoring wells was less than 15 feet below ground surface (bgs) allowing the use of a peristaltic pump for purging and sampling. Wells were purged by slowly lowering new high-density polyethylene (HDPE) tubing into the well to the midpoint of the screen interval, attaching the HDPE tubing to a peristaltic pump, and pumping at a low flow rate of approximately 0.2 to 0.5 liters per minute (L/min). Temperature, pH, turbidity, specific electrical conductance, oxidation-reduction potential, and dissolved oxygen were monitored approximately every 3 to 5 minutes during purging. Purging continued until indicator parameters stabilized. Flow rates were reduced to 0.1 and 0.2 L/min prior to filling volatile organic analysis vials. Field sampling data sheets are provided in Appendix F.

### **6.2.2 Biotrap Installation and Sampling**

Biological traps (biotrap) were installed in monitoring wells W9-29 and W9-46 on April 29, 2005. The biotrap were suspended within the wells in the middle of the screened interval on monofilament nylon fishing line, which was secured at the top of the well. The biotrap were approximately 2 centimeters (cm) in diameter and 10 cm long. The biotrap were baited (impregnated) with various substrates, which are commonly used to stimulate reductive dechlorination to assess the response of the in situ microbial community to a particular substrate. Analysis of preliminary substrate screening provided information regarding preferred substrate(s) on a site-specific basis, which can be used in evaluating enhanced in situ bioremediation as a remedial technique. The biotrap were installed May 31, 2005, removed 30 days later, and sent to a laboratory for analysis.

## **6.3 MONITORING WELL SAMPLING ACTIVITY RESULTS**

The results of groundwater monitoring well sampling were used to evaluate PCE distribution in the upper portion of the A aquifer, lower portion of the A aquifer, and the B2 aquifer zone hydraulically downgradient (to the north) of the former Building 88. Groundwater monitoring well samples were analyzed for VOCs, anions, and cations. Groundwater analytical results are presented in Table 6-1. Biotrap sampling results were used to evaluate potential environmental response actions. Biotrap sampling results are described in Section 10.4.

PCE concentrations for groundwater samples collected in April 2005 from the upper A aquifer monitoring wells (14D29A, W1C-1, W29-3, W29-4, and W9-46) were compared to PCE results from the December 2004 annual groundwater sampling event (TiFW, 2005b) in Table 6-2. The April 2005 PCE concentrations in groundwater samples collected from 14D29A, W1C-1, W29-3, W29-4, and W9-46 were generally consistent with the December 2004 PCE concentrations. Upper A aquifer PCE isoconcentration contours based on the December 2004 analytical results are shown on Figure 6-3. The PCE concentrations in extraction wells were not used in the





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TABLE 6-1

**GROUNDWATER MONITORING WELL SAMPLE RESULTS  
FORMER NAS MOFFETT FIELD  
MOFFETT FIELD, CA**

Sample Number	86-WOPT-105	86-WOPT-106	86-WOPT-107 (FO)	86-WOPT-121	86-WOPT-115	86-WOPT-108
Sample Location	14029A	14030A	14030A	51B2	W1C-1	W29-3
Sample Date	4/28/2005	4/28/2005	4/28/2005	4/27/2005	4/28/2005	4/28/2005
<b>Analyte</b>						
<i>VOCs (EPA Method 8260B) (µg/L)</i>						
ACETONE	5 U	5 U	5 U	5 U	5 U	5 U
BENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BROMODICHLOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BROMOFORM	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BROMOMETHANE	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 U
2-BUTANONE	5 U	5 U	5 U	5 U	5 U	5 U
CARBON DISULFIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CARBON TETRACHLORIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CHLOROBENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CHLOROFORM	0.34 J	0.27 J	0.26 J	0.5 U	0.56	0.21 J
CHLOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
DIBROMOCHLOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-DICHLOROETHANE	11	13	15	0.5 U	11	14
1,2-DICHLOROETHANE	0.67	0.61	0.5 U	0.5 U	0.5 U	1.6
1,1-DICHLOROETHENE	13	35	36	0.36 J	19	36
CIS-1,2-DICHLOROETHENE	790 J	540 J	530 J	0.9	250 J	900 J
TRANS-1,2-DICHLOROETHENE	6.1	7.4	7.3	0.5 U	1.9	5.4
1,2-DICHLOROPROPANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CIS-1,3-DICHLOROPROPENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TRANS-1,3-DICHLOROPROPENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
ETHYL BENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-HEXANONE	5 U	5 U	5 U	5 U	5 U	5 U
M,P-XYLENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
METHYL TERT-BUTYL ETHER	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
4-METHYL-2-PENTANONE	5 U	5 U	5 U	5 U	5 U	5 U
METHYLENE CHLORIDE	0.58 U	0.6 U	0.62 U	0.72 U	0.58 U	0.75 U
O-XYLENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
STYRENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-TETRACHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TETRACHLOROETHENE	49	1.9	1.3	0.31 J	12	6.5
TOLUENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	6.3	32	33	1.1	11	26
1,1,2-TRICHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,1-TRICHLOROETHANE	0.5 U	0.74	0.84	0.5 U	2.3	0.5
TRICHLOROETHENE	190 J	1800 J	1800 J	20	1200 J	1400 J
VINYL CHLORIDE	2	15	15	0.5 U	5.5	4
<b>Anions (EPA Method 300.0) (µg/L)</b>						
CHLORIDE	40600	40100	40500	14200	37100	44200
NITRATE (AS N)	200 U	3420	200 U	3510	7390	3300 J
NITRITE (AS N)	100 U	100 U	100 U	100 U	100 U	100 U
SULFATE	227000	242000	253000	19300	242000	287000
<b>Total Alkalinity (EPA Method 310.1) (mg/L)</b>						
BICARBONATE (AS CaCO <sub>3</sub> )	448	366	368	224	419	350
CARBONATE (AS CaCO <sub>3</sub> )	5 U	5 U	5 U	5 U	5 U	5 U

## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 6-1

**GROUNDWATER MONITORING WELL SAMPLE RESULTS  
FORMER NAS MOFFETT FIELD  
MOFFETT FIELD, CA**

Sample Number	86-WOPT-105	86-WOPT-106	86-WOPT-107 (FO)	86-WOPT-121	86-WOPT-115	86-WOPT-108
Sample Location	14029A	14030A	14030A	51B2	WIC-1	W29-3
Sample Date	4/28/2005	4/28/2005	4/28/2005	4/27/2005	4/28/2005	4/28/2005
<b>Analyte</b>						
<i>Cations (EPA Method 6010B) (mg/L)</i>						
CALCIUM	160	159	158	37.1	163	160 J
IRON	0.1 U	0.1 U	0.22	0.06 J	0.028 J	3 J
MAGNESIUM	61.2 J	46.8 J	48 J	15.2 J	51.5 J	50.1 J
POTASSIUM	1.2 J	1.6 J	1.6 J	0.87 J	1.4 J	1.7 J
SODIUM	38	36.8	37.5	42.4	34.9	39.3
<i>Field Measurements</i>						
TEMPERATURE (C)	19.82	19.28	NA	18.96	20.24	21.43
DISSOLVED OXYGEN (mg/L)	0.27	0.15	NA	0.23	0.11	0.12
OXIDATION REDUCTION POTENTIAL (mV)	146	101	NA	40	80	-4
TURBIDITY (NTU)	1.9	6.7	NA	4.8	3.8	2.1
pH (pH units)	8.19	8.57	NA	8.47	8.47	8.72
SPECIFIC CONDUCTIVITY (µmhos/mm)	1270	1195	NA	479.3	1260	1235

**Notes:**

Bold - Indicates value above method detection limit

**Abbreviations and Acronyms:**

µg/L - micrograms per liter

µmhos/cm - micromhos per centimeter

C - Celsius

CA - California

CaCO<sub>3</sub> - calcium carbonate

EPA - U.S. Environmental Protection Agency

FO - field duplicate

J - estimated value

mg/L - milligrams per liter

mV - millivolts

NA - not analyzed

NAS - Naval Air Station

NTU - nephelometric turbidity unit

U - not detected at or above the laboratory reporting limit (value indicates the reporting limit)

VOC - volatile organic compound

## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 6-1

**GROUNDWATER MONITORING WELL SAMPLE RESULTS  
FORMER NAS MOFFETT FIELD  
MOFFETT FIELD, CA**

Sample Number	86-WOPT-109 (FD)	86-WOPT-111	86-WOPT-110	86-WOPT-118	86-WOPT-120	86-WOPT-119
Sample Location	W29-3	W29-4	W9-6	W9-11	W9-12	W9-15
Sample Date	4/28/2005	4/28/2005	4/28/2005	4/28/2005	4/27/2005	4/28/2005
<b>Analyte</b>						
<i>VOCs (EPA Method 8260B) (µg/L)</i>						
ACETONE	5 U	5 U	5 U	5 U	5 U	5 U
BENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BROMODICHLOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BROMOFORM	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BROMOMETHANE	0.5 U	0.5 UJ	0.5 U	0.5 UJ	0.5 U	0.5 UJ
2-BUTANONE	5 U	5 U	5 U	5 U	5 U	5 U
CARBON DISULFIDE	0.5 U	0.5 U	0.23 J	0.5 U	0.5 U	0.5 U
CARBON TETRACHLORIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CHLOROBENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CHLOROFORM	0.21 J	1.4	0.5 U	0.5 U	0.5 U	0.5 U
CHLOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
DIBROMOCHLOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-DICHLOROETHANE	14	12	12	0.5 U	0.5 U	0.5 U
1,2-DICHLOROETHANE	1.5	0.5 U	2.6	0.5 U	0.5 U	0.5 U
1,1-DICHLOROETHENE	34	19	31	0.5 U	0.5 U	0.5 U
CIS-1,2-DICHLOROETHENE	860 J	340 J	1700 J	0.71	0.47 J	0.28 J
TRANS-1,2-DICHLOROETHENE	5	1.8	14	0.5 U	0.23 J	0.5 U
1,2-DICHLOROPROPANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CIS-1,3-DICHLOROPROPENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TRANS-1,3-DICHLOROPROPENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
ETHYL BENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-HEXANONE	5 U	5 U	5 U	5 U	5 U	5 U
M,P-XYLENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
METHYL TERT-BUTYL ETHER	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
4-METHYL-2-PENTANONE	5 U	5 U	5 U	5 U	5 U	5 U
METHYLENE CHLORIDE	0.73 U	0.56 U	0.73 U	0.58 U	0.73 U	0.6 U
O-XYLENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
STYRENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-TETRACHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TETRACHLOROETHENE	6.3	0.5 U	0.5 U	0.17 J	0.5 U	0.5 U
TOLUENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	24	8.1	8.3	0.5 U	0.5 U	0.5 U
1,1,2-TRICHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,1-TRICHLOROETHANE	0.53	0.27 J	0.5 U	0.5 U	0.5 U	0.5 U
TRICHLOROETHENE	1500 J	360 J	8.9	1.1	2.8	0.52
VINYL CHLORIDE	3.6	1.7	3.7	0.5 U	0.5 U	0.5 U
<i>Anions (EPA Method 300.0) (µg/L)</i>						
CHLORIDE	44300	16600	43200	13600	7380	17700
NITRATE (AS N)	659 J	3290	200 U	2860	200 U	2960
NITRITE (AS N)	100 U	100 U	100 U	100 U	100 U	100 U
SULFATE	288000	120000	299000	6520	5590	39400
<i>Total Alkalinity (EPA Method 310.1) (mg/L)</i>						
BICARBONATE (AS CaCO <sub>3</sub> )	352	376	356	181	51.3	218
CARBONATE (AS CaCO <sub>3</sub> )	5 U	5 U	5 U	5 U	7.6	3.6 J

## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 6-1

**GROUNDWATER MONITORING WELL SAMPLE RESULTS  
FORMER NAS MOFFETT FIELD  
MOFFETT FIELD, CA**

Sample Number	86-WOPT-109 (FD)	86-WDPT-111	86-WOPT-110	86-WOPT-118	86-WOPT-120	86-WOPT-119
Sample Location	W29-3	W29-4	W9-6	W9-11	W9-12	W9-15
Sample Date	4/28/2005	4/28/2005	4/28/2005	4/28/2005	4/27/2005	4/28/2005
<b>Analyte</b>						
<i>Cations (EPA Method 6010B) (mg/L)</i>						
CALCIUM	98.6 J	104	163	21.2	11.7	40.1
IRON	0.054 J	0.054 J	0.21	1.6	3.4	1.4
MAGNESIUM	39.5 J	40.6 J	50.3 J	10.8 J	2.4 J	17.8 J
POTASSIUM	2.1 J	2 J	1.7 J	1.6 J	4.4 J	0.82 J
SODIUM	32	32.5	38.6	53.5	13.8	43
<i>Field Measurements</i>						
TEMPERATURE (C)	NA	21.28	20.3	19.45	22.89	20.3
DISSOLVED OXYGEN (mg/L)	NA	0.33	0.25	0.19	0.26	0.18
OXIDATION REDUCTION POTENTIAL (mV)	NA	78	-121	-159	-112	-150
TURBIDITY (NTU)	NA	0.8	10.4	14.9	7.9	7.1
pH (pH units)	NA	8.79	9.13	9.81	9.39	9.99
SPECIFIC CONDUCTIVITY (µmhos/cm)	NA	926.5	1250	349.4	144.5	504.1

**Notes:**

Bold - Indicates value above method detection limit

**Abbreviations and Acronyms:**

µg/L - micrograms per liter

µmhos/cm - micromhos per centimeter

C - Celsius

CA - California

CaCO<sub>3</sub> - calcium carbonate

EPA - U.S. Environmental Protection Agency

FD - field duplicate

J - estimated value

mg/L - milligrams per liter

mV - millivolts

NA - not analyzed

NAS - Naval Air Station

NTU - nephelometric turbidity unit

U - not detected at or above the laboratory reporting limit (value indicates the reporting limit)

VOC - volatile organic compound

## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 6-1

**GROUNDWATER MONITORING WELL SAMPLE RESULTS  
FORMER NAS MOFFETT FIELD  
MOFFETT FIELD, CA**

Sample Number	86-WOPT-114	86-WOPT-112	86-WOPT-116	86-WOPT-113	86-WOPT-117	86-WOPT-143
Sample Location	W9-20	W9-23	W9-46	W9SC-3	W9SC-15	W88-1
Sample Date	4/28/2005	4/27/2005	4/27/2005	4/27/2005	4/27/2005	8/22/2005
<b>Analyte</b>						
<i>FOCs (EPA Method 8260B) (µg/L)</i>						
ACETONE	5 U	5 U	5 U	5 U	5 U	250 U
BENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	25 U
BROMODICHLOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	25 U
BROMOFORM	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	25 U
BROMOMETHANE	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	25 U
2-BUTANONE	5 U	5 U	5 U	5 U	5 U	250 U
CARBON DISULFIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	25 U
CARBON TETRACHLORIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	25 U
CHLOROBENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	25 U
CHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	25 U
CHLOROFORM	0.52	1.1	0.25 J	0.38 J	0.49 J	25 U
CHLOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	25 U
DIBROMOCHLOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	25 U
1,1-DICHLOROETHANE	11	11	3.9	13	8.7	25 U
1,2-DICHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	25 U
1,1-DICHLOROETHENE	48	11	9.9	74	48	45
CIS-1,2-DICHLOROETHENE	540 J	220 J	280 J	1000 J	330	9700
TRANS-1,2-DICHLOROETHENE	2.8	2.9	1.4	9.5	1.6	110
1,2-DICHLOROPROPANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	25 U
CIS-1,3-DICHLOROPROPENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	25 U
TRANS-1,3-DICHLOROPROPENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	25 U
ETHYL BENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	25 U
2-HEXANONE	5 U	5 U	5 U	5 U	5 U	250 UJ
M,P-XYLENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	25 U
METHYL TERT-BUTYL ETHER	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	25 U
4-METHYL-2-PENTANONE	5 U	5 U	5 U	5 U	5 U	250 U
METHYLENE CHLORIDE	0.61 U	0.72 U	0.7 U	0.88 U	0.67 U	25 U
O-XYLENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	25 U
STYRENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	25 U
1,1,2,2-TETRACHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	25 U
TETRACHLOROETHENE	530 J	3.6	150 J	67	170 J	69 J
TOLUENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	25 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	74	3.2	3.1	67	61	25 U
1,1,2-TRICHLOROETHANE	0.5 U	0.5 U	0.5 U	0.44 J	0.5 U	25 U
1,1,1-TRICHLOROETHANE	0.53	1.8	1.8	0.5 U	0.61	25 U
TRICHLOROETHENE	3100 J	1000 J	490 J	4500 J	2700	31 J
VINYL CHLORIDE	2	0.93	0.94	3.3	2.1	25 U
<i>Anions (EPA Method 300.0) (µg/L)</i>						
CHLORIDE	39600	26100	40900	39600	40400	NA
NITRATE (AS N)	5360	11500	6270	12200	9180	NA
NITRITE (AS N)	100 U	100 U	100 U	100 U	100 U	NA
SULFATE	333000	185000	468000	246000	310000	NA
<i>Total Alkalinity (EPA Method 310.1) (mg/L)</i>						
BICARBONATE (AS CaCO <sub>3</sub> )	308	422	404	276	296	NA
CARBONATE (AS CaCO <sub>3</sub> )	5 U	5 U	5 U	5 U	5 U	NA



## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 6-1

**GROUNDWATER MONITORING WELL SAMPLE RESULTS  
FORMER NAS MOFFETT FIELD  
MOFFETT FIELD, CA**

Sample Number	86-WOPT-114	86-WOPT-112	86-WOPT-116	86-WOPT-113	86-WOPT-117	86-WOPT-143
Sample Location	W9-20	W9-23	W9-46	W9SC-3	W9SC-15	W88-1
Sample Date	4/28/2005	4/27/2005	4/27/2005	4/27/2005	4/27/2005	8/22/2005
<b>Analyte</b>						
<i>Cations (EPA Method 6010B) (mg/L)</i>						
CALCIUM	179	152	227	143	173	NA
IRON	17.5	1.9	0.027 J	0.075 J	0.039 J	NA
MAGNESIUM	47.2 J	50.1 J	67.1 J	39.2 J	47.5 J	NA
POTASSIUM	1.7 J	1.7 J	1.4 J	1.8 J	1.7 J	NA
SODIUM	34	36.9	36.8	37.6	34.2	NA
<i>Field Measurements</i>						
TEMPERATURE (C)	20.2	18.94	19.16	20.17	19.52	21.65
DISSOLVED OXYGEN (mg/L)	0.13	0.34	0.29	3.55	0.25	0.36
OXIDATION REDUCTION POTENTIAL (mV)	4	86	108	84	77	43
TURBIDITY (NTU)	2.5	4.3	5.4	9.6	5.8	20.2
pH (pH units)	8.59	7.22	7.08	7.48	7.25	6.23
SPECIFIC CONDUCTIVITY $\mu$ mhos/cm	1234	1145	1521	1051	1163	823.3

**Notes:**

Bold - Indicates value above method detection limit

**Abbreviations and Acronyms:** $\mu$ g/L - micrograms per liter $\mu$ mhos/cm - micromhos per centimeter

C - Celsius

CA - California

CaCO<sub>3</sub> - calcium carbonate

EPA - U.S. Environmental Protection Agency

FO - field duplicate

J - estimated value

mg/L - milligrams per liter

mV - millivolts

NA - not analyzed

NAS - Naval Air Station

NTU - nephelometric turbidity unit

U - not detected at or above the laboratory reporting limit (value indicates the reporting limit)

VOC - volatile organic compound

## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 6-1

**GROUNDWATER MONITORING WELL SAMPLE RESULTS  
FORMER NAS MOFFETT FIELD  
MOFFETT FIELD, CA**

Sample Number	86-WOPT-144 (FO)	86-WOPT-141	86-WOPT-142
Sample Location	W88-1	W88-2	W88-3
Sample Date	8/22/2005	8/22/2005	8/22/2005
<b>Analyte</b>			
<i>VOCs (EPA Method 8260B) (µg/L)</i>			
ACETONE	250 U	5 U	5 U
BENZENE	25 U	0.5 U	0.5 U
BROMODICHLOROMETHANE	25 U	0.5 U	0.5 U
BROMOFORM	25 U	0.5 U	0.5 U
BROMOMETHANE	25 U	0.5 U	0.5 U
2-BUTANONE	250 U	5 U	5 U
CARBON DISULFIDE	25 U	0.35 J	0.5 U
CARBON TETRACHLORIDE	25 U	0.5 U	0.5 U
CHLOROBENZENE	25 U	0.5 U	0.5 U
CHLOROETHANE	25 U	0.5 U	0.5 U
CHLOROFORM	25 U	0.5 U	0.5 U
CHLOROMETHANE	25 U	0.5 U	0.5 U
DIBROMOCHLOROMETHANE	25 U	0.5 U	0.5 U
1,1-DICHLOROETHANE	25 U	0.5 U	0.21 J
1,2-DICHLOROETHANE	25 U	0.5 U	0.5 U
1,1-DICHLOROETHENE	47 J	0.5 U	0.45 J
CIS-1,2-DICHLOROETHENE	10000	0.28 J	5.3
TRANS-1,2-DICHLOROETHENE	120	0.5 U	0.5 U
1,2-DICHLOROPROPANE	25 U	0.5 U	0.5 U
CIS-1,3-DICHLOROPROPENE	25 U	0.5 U	0.5 U
TRANS-1,3-DICHLOROPROPENE	25 U	0.5 U	0.5 U
ETHYL BENZENE	25 U	0.5 U	0.5 U
2-HEXANONE	250 UJ	5 U	5 U
M,P-XYLENE	25 U	0.5 U	0.5 U
METHYL TERT-BUTYL ETHER	25 U	0.5 U	0.5 U
4-METHYL-2-PENTANONE	250 U	5 U	5 U
METHYLENE CHLORIDE	25 U	0.5 U	0.5 U
O-XYLENE	25 U	0.5 U	0.5 U
STYRENE	25 U	0.5 U	0.5 U
1,1,2,2-TETRACHLOROETHANE	25 U	0.5 U	0.5 U
TETRACHLOROETHENE	47 J	0.17 J	0.5 U
TOLUENE	25 U	0.5 U	0.5 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	25 U	4.2	0.35 J
1,1,2-TRICHLOROETHANE	25 U	0.5 U	0.5 U
1,1,1-TRICHLOROETHANE	25 U	0.5 U	0.5 U
TRICHLOROETHENE	20 J	7.2	7.3
VINYL CHLORIDE	25 U	0.5 U	0.5 U
<i>Anions (EPA Method 300.0) (µg/L)</i>			
CHLORIDE	NA	NA	NA
NITRATE (AS N)	NA	NA	NA
NITRITE (AS N)	NA	NA	NA
SULFATE	NA	NA	NA
<i>Total Alkalinity (EPA Method 310.1) (mg/L)</i>			
BICARBONATE (AS CaCO <sub>3</sub> )	NA	NA	NA
CARBONATE (AS CaCO <sub>3</sub> )	NA	NA	NA

## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 6-1

**GROUNDWATER MONITORING WELL SAMPLE RESULTS  
FORMER NAS MOFFETT FIELD  
MOFFETT FIELD, CA**

Sample Number	86-WDPT-144 (FD)	86-WOPT-141	86-WDPT-142
Sample Location	W88-1	W88-2	W88-3
Sample Date	8/22/2005	8/22/2005	8/22/2005
<b>Analyte</b>			
<i>Cations (EPA Method 6010B) (mg/L)</i>			
CALCIUM	NA	NA	NA
IRON	NA	NA	NA
MAGNESIUM	NA	NA	NA
POTASSIUM	NA	NA	NA
SODIUM	NA	NA	NA
<b>Field Measurements</b>			
TEMPERATURE (C)	NA	21.35	23.02
DISSOLVED OXYGEN (mg/L)	NA	0.5	0.45
OXIDATION REDUCTION POTENTIAL (mV)	NA	154	74
TURBIDITY (NTU)	NA	2.13	3.6
pH (pH units)	NA	7.12	6.97
SPECIFIC CONDUCTIVITY (µmhos/cm)	NA	644	643

**Notes:**

Bold - Indicates value above method detection limit

**Abbreviations and Acronyms:**

µg/L - micrograms per liter

µmhos/cm - micromhos per centimeter

C - Celsius

CA - California

CaCO<sub>3</sub> - calcium carbonate

EPA - U.S. Environmental Protection Agency

FD - field duplicate

J - estimated value

mg/L - milligrams per liter

mV - millivolts

NA - not analyzed

NAS - Naval Air Station

NTU - nephelometric turbidity unit

U - not detected at or above the laboratory reporting limit (value indicates the reporting limit)

VOC - volatile organic compound

## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 6-2

### UPPER A AQUIFER PCE CONCENTRATION COMPARISON DECEMBER 2004 AND APRIL 2005 FORMER NAS MOFFETT FIELD MOFFETT FIELD, CA

Well Location	PCE Concentrations December 2004 (µg/L)	PCE Concentrations April 2005 (µg/L)
I4D29A	68	49
WIC-1	10J	12
W29-3	5J	6.5
W29-4	4U	0.5U
W9-46	230	150J

*Notes:*

Bold – Indicates value above method detection limit

*Abbreviations and Acronyms:*

µg/L – micrograms per liter

CA – California

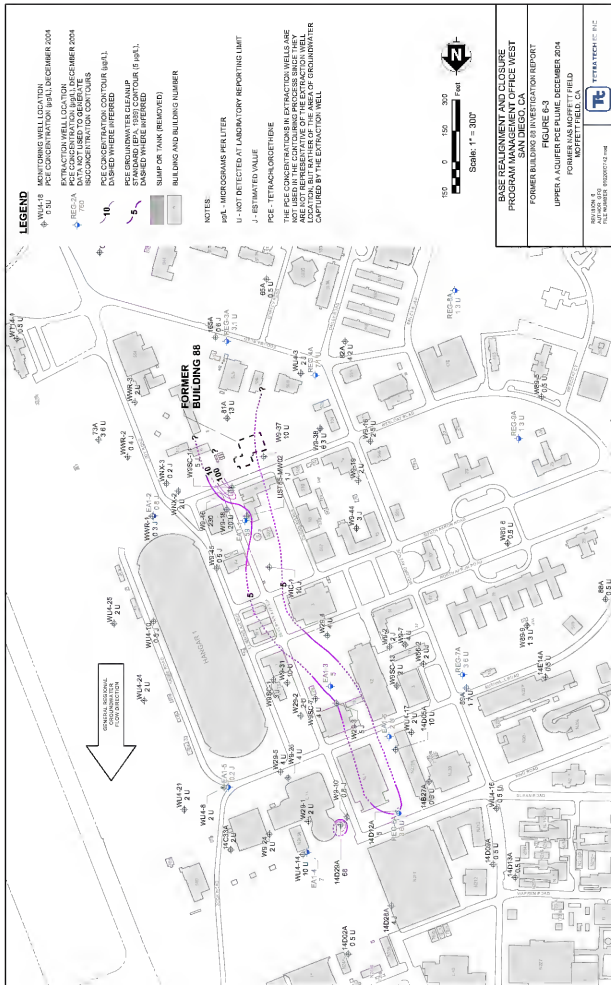
J – estimated value

NAS – Naval Air Station

PCE – tetrachloroethene

U – not detected at or above the laboratory reporting limit (value indicates the reporting limit)

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contouring process since they are not representative of the extraction well location, but rather of the area of groundwater captured by the extraction well. The PCE concentrations for groundwater samples collected in April 2005 from the upper A aquifer monitoring wells 14D30A, W9-23, and W9-6 (which were not sampled in December 2004) were consistent with the interpreted December 2004 PCE isoconcentration contours.

PCE concentrations for the lower A aquifer monitoring wells (W9-20, W9SC-15, and W9SC-3) were compared to PCE results from the December 2004 WATS annual sampling event (TtFW, 2005b) in Table 6-3. All the April 2005 lower A aquifer PCE concentrations were consistent with the interpreted December 2004 PCE isoconcentration contours. Lower A aquifer PCE isoconcentration contours based on the December 2004 analytical results are shown on Figure 6-4. The PCE concentrations in extraction wells were not used in the contouring process since they are not representative of the extraction well location, but rather of the area of groundwater captured by the extraction well.

Groundwater samples collected from four B2 aquifer zone monitoring wells (51B2 and W9-11 in April 2005, and W88-1 and W88-2 in August 2005) contained PCE at concentrations at 69 ug/L, an estimated 0.17 ug/L, an estimated 0.31 ug/L, and an estimated 0.17 ug/L, respectively. Groundwater samples collected from three other B2 aquifer zone wells (W9-12 and W9-15 in April 2005, and W88-3 in August 2005) did not contain PCE at concentrations greater than the laboratory reporting limit. A groundwater sample collected from B2 aquifer zone monitoring well W88-1 in December 2005 contained PCE at a concentration of 6 ug/L. Groundwater samples collected from four other B2 aquifer zone wells (W9-12, W9-15, W88-2, and W88-3 in December 2005) did not contain PCE at concentrations greater than the laboratory reporting limit. The August 2005 groundwater sample collected from W88-1 was obtained shortly after well construction. The PCE concentration in the groundwater sample collected from W88-1 in August 2005 appears to be impacted by drag-down during well construction. There appears to be de minimus PCE impacting the B2 aquifer.

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## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 6-3

### LOWER A AQUIFER PCE CONCENTRATION COMPARISON DECEMBER 2004 AND APRIL 2005 FORMER NAS MOFFETT FIELD MOFFETT FIELD, CA

Well Location	PCE Concentrations December 2004 (µg/L)	PCE Concentrations April 2005 (µg/L)
W9-20	<b>410J</b>	<b>530J</b>
W9SC-15	<b>180</b>	<b>170J</b>
W9SC-3	<b>82</b>	<b>67</b>

*Notes:*

Bold – Indicates value above method detection limit

*Abbreviations and Acronyms:*

µg/L – micrograms per liter

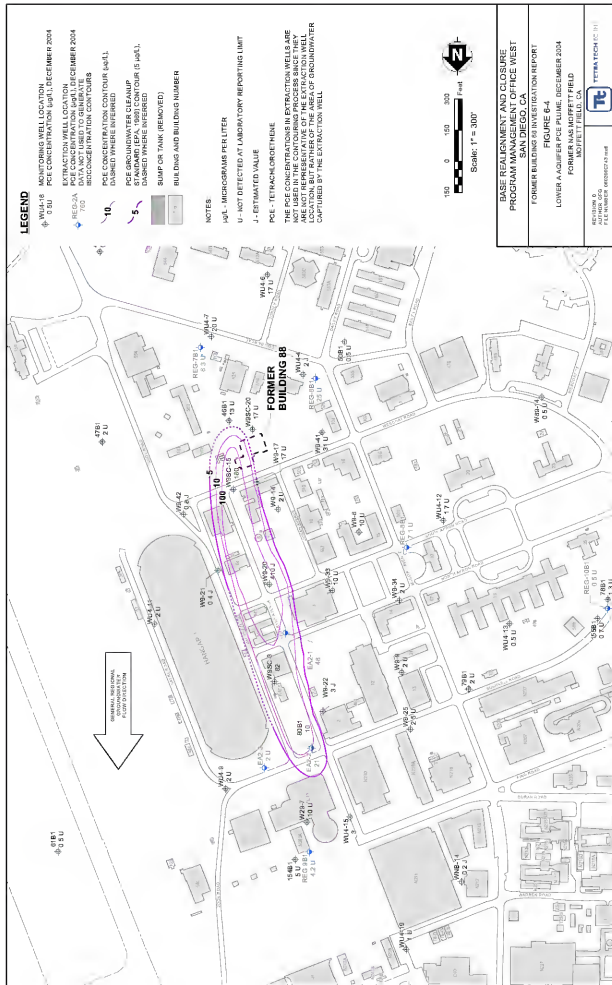
CA – California

J – estimated value

NAS – Naval Air Station

PCE – tetrachloroethene

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FORMER BUILDING 80 INVESTIGATION REPORT

FIGURE 8.4

400 7110011

EN FOR FLOW, NOVEMBER 2004

RENAS MCHETT FIELD  
RENETT FIELD CA

OFFICE OF THE ATTORNEY GENERAL


TETRA TECH

2

144

## 7.0 QUALITY ASSURANCE AND QUALITY CONTROL

Soil and water samples were analyzed by a state of California-certified and Navy-evaluated laboratory. Soil gas samples were analyzed in the field by a mobile laboratory. A third-party validation company performed data validation of all samples, except for soil gas samples, which were analyzed by a mobile laboratory and do not require validation. The validation was conducted in accordance with the U.S. Environmental Protection Agency (EPA) Contract Laboratory Program *National Functional Guidelines For Organic Data Review* (EPA, 1999), the Contract Laboratory Program *National Functional Guidelines for Inorganic Data Review* (EPA, 2004a), the Department of Defense (DoD) *Quality Systems Manual for Environmental Laboratories* (DoD, 2002), and the criteria specified in the *Final West-Side Aquifers Treatment System Optimization Work Plan*, Sampling and Analysis Plan (Foster Wheeler Environmental Corporation [FWENC], 2003) and Sampling and Analysis Plan Addendum of the *Final West-Side Aquifers Treatment System Optimization Work Plan Addendum 1* (Tetra Tech FW, Inc. [TiFW], 2005a). Twenty percent of the samples were validated in accordance with an EPA Level IV-equivalent protocol, and the remainder of the samples were validated in accordance with an EPA Level III-equivalent protocol. The chain-of-custody records, laboratory reports, and data validation reports for Building 88 were included in Appendix B. A detailed quality assurance (QA) and quality control (QC) description for the field sampling and laboratory analysis is included in Appendix G.

### 7.1 FIELD QUALITY CONTROL SAMPLING OBJECTIVES

Ninety-six field QC samples were collected. Field QC sampling objectives were met per the *Final West-Side Aquifers Treatment System Optimization Work Plan*, Sampling and Analysis Plan (FWENC, 2003). The following sections describe the results of the field QC sampling for the Building 88 sampling.

#### 7.1.1 Field Duplicates

Field duplicates were collected at a frequency of 1 per every 10 samples and were analyzed for the same parameters as the original sample. Field duplicates were not required for soil samples due to matrix heterogeneity.

Three field duplicates were collected for soil gas samples. All relative percent difference (RPD) values for gas samples were less than 25 percent, which was considered acceptable (FWENC, 2003).

Twenty-three groundwater field duplicates were collected. Generally the RPD values for the volatile organic compound (VOC), anion, and cation analyses could not be calculated (due to pairs with non-detect results) or were greater than 25 percent. Samples with greater than 25

percent RPD were likely the result of high sediment content typical of the HydroPunch® sampling method. Results were qualified with a “J” (estimated) as a result of field duplicate RPDs outside of QC limits.

### 7.1.2 Trip Blanks

Thirty-one trip blank samples were transported with the samples to the laboratory and analyzed for VOCs. Acetone was detected in several trip blanks and in some of the samples shipped with the trip blanks. Methylene chloride was detected in several trip blanks but was not detected in the samples shipped with the trip blanks. Acetone and methylene chloride are common laboratory contaminants. Acetone and methylene chloride were detected in most of the associated method blanks, and therefore, are suspected to come from the laboratory environment. Tetrachloroethene (PCE) and trichloroethene (TCE) were detected in two trip blanks. Samples that traveled in the cooler with affected trip blanks were qualified as estimated when analyte concentrations were less than five times (for non-common laboratory contaminants) or ten times (for common laboratory contaminants) the reported concentrations in the trip blank. A detailed discussion is provided in Appendix G.

### 7.1.3 Matrix Spike and Matrix Spike Duplicate

One matrix spike and matrix spike duplicate (MS/MSD) sample was collected for every 20 soil or groundwater samples. Ten MS/MSD samples were collected for the soil matrix, and 11 were collected for the water matrix. The percent recoveries and RPDs were within the specified QC limits described in the *Final West-Side Aquifers Treatment System Optimization Work Plan*, Sampling and Analysis Plan (FWENC, 2003) and *Final West-Side Aquifers Treatment System Optimization Work Plan Addendum 1* (TtFW, 2005a) for most samples. Samples were flagged “J/UJ” (estimated value) for the analytes outside the required limits. A detailed discussion is provided in Appendix G.

### 7.1.4 Equipment Rinsate

One rinsate was collected each day during Building 88 sampling, when disposable sampling equipment was not used. No analytes were reported at or above laboratory reporting limits in the equipment rinsate samples, except for total organic carbon (TOC). Results are not usually qualified based on field QC samples, such as equipment rinsates. Data were only qualified when the parameters were outside the QC limits. Therefore, no associated samples were qualified.

## 7.2 ANALYTICAL LABORATORY DATA QA/QC

The following sections describe the fulfillment of the analytical Data Quality Objectives for the Building 88 sampling, as described in the *Final West-Side Aquifers Treatment System Optimization Work Plan*, Sampling and Analysis Plan (FWENC, 2003) and *Final West-Side Aquifers Treatment System Optimization Work Plan Addendum 1* (TtFW, 2005a).

### 7.2.1 Holding Times

The direct push technology (DPT) groundwater sample collected from location CPT-88-19 at 47 to 50 feet below ground surface (bgs) did not meet holding time. Nitrate and nitrite analysis have a holding time of 48 hours, and the sample was analyzed 12 days after sample collection date due to laboratory error. For this sample, nitrate was flagged as estimated, and nitrite was flagged with an “R” (rejected) qualifier. A field duplicate groundwater sample collected from location CPT-88-19 at 47 to 50 feet bgs was analyzed within the required holding time. All other samples met holding times.

### 7.2.2 Method Blanks

Some method blanks for VOC, anion, and TOC analyses contained one or more of the following analytes - acetone, methylene chloride, cis-1,2-dichloroethene (cis-1,2-DCE), TCE, PCE, nitrite, and/or TOC. Acetone and methylene chloride were flagged “U” (less than the laboratory reporting limit) for the associated samples, if compounds were not detected above the laboratory reporting limit or if the compound concentrations were not greater than 10 times the concentrations found in the associated method blank. Cis-1,2-DCE, TCE, PCE, nitrite, and TOC were flagged as less than the laboratory reporting limit for associated samples, if compounds were not detected above the laboratory reporting limit or if the compound concentrations were not greater than five times the concentrations found in the associated method blank. Select samples were flagged as less than the laboratory reporting limit as a result of compounds found in associated method blanks. A detailed discussion is provided in Appendix G.

### 7.2.3 Surrogate Percent Recovery

The surrogate percent recoveries were outside QC limits for the groundwater samples collected from the following locations depths: CPT-88-8 at 32 to 34 feet bgs; CPT-88-23 at 18.5 to 20.5 feet bgs, 22 to 24 feet bgs, 26.5 to 28.5 feet bgs, and 30 to 32 feet bgs; and the groundwater samples (diluted for analysis) collected from monitoring wells 14D29A, 14D30A, 14D30A (field duplicate), W1C-1, W29-3 (field duplicate), W29-4, W9-6, W9-20, W9-23, W9-46, and W9SC-3. Groundwater sample dilution was required because TCE and/or cis-1,2-DCE concentrations were above the calibration range. The analytical results were flagged as estimated for all affected compounds. All other surrogate percent recoveries were within QC limits.

There were 133 DPT depth-specific groundwater samples collected. Five of these samples were outside QC limits for surrogate percent recovery – which results in 4 percent not within QC limits for the DPT groundwater samples. There were 21 groundwater samples collected (some of which were duplicates). Eleven of these samples were outside QC limits for surrogate percent recovery – which results in 50 percent not being within QC limits for the monitoring well groundwater samples. The laboratory was being overloaded with water, soils, and reanalysis samples during that time. The dilution sample was being analyzed on the last day of the holding time being out. The laboratory made a judgment call to not reanalyze these samples, since they

would be qualified anyway for being outside the holding time. The data are usable, but have been qualified as estimated, as stated in the QC report.

#### **7.2.4 Laboratory Control Samples**

All laboratory control samples were within QC limits.

#### **7.2.5 Internal Standards**

The internal standards and retention times were outside QC limits for soil samples collected from the following locations/depths: boring CC-8-3 at 9.5 to 10 feet bgs; boring CC-88-3 at 14 to 14.5 feet bgs; the DPT boring at location CPT-88-1 at 12.5 to 13.5 feet bgs; the DPT boring at location CPT-88-10 at 10.5 to 11.5 feet bgs; the DPT boring at location CPT-88-19 at 6 to 7 feet bgs and 11.5 to 12.5 feet bgs; the DPT boring at location CPT-88-22 at 12 to 13 feet bgs; and the DPT boring at location CPT-88-23 at 11 to 12 feet bgs, 16 to 17 feet bgs, 23 to 24 feet bgs, and 32 to 33 feet bgs. These samples were flagged as estimated values for compounds 4-methyl-2-pentanone and 1,1,2,2-tetrachloroethane. All other internal standards and retention times were within QC limits.

#### **7.2.6 Target Compound Identifications**

All target analytes were correctly identified.

#### **7.2.7 Compound Quantitation**

Nitrates and some VOCs were reported incorrectly by the laboratory. Corrective action was implemented, and amended reports were submitted. Amended report pages are included in Appendix B.

#### **7.2.8 System Performance**

System performance met all QC requirements.

#### **7.2.9 Completeness**

The HydroPunch<sup>®</sup> groundwater sample from the DPT boring at location CPT-88-19 at 47 to 50 feet bgs did not meet the holding time requirements for nitrate and nitrite. Nitrite was flagged "R" for rejected. The percent completeness for soil is 100 percent and 99 percent for water.

### **7.3 OVERALL ASSESSMENT OF DATA**

Overall, the quality of data collected from the Building 88 sampling is valid and usable. Most of the soil and groundwater samples for VOC analysis had high concentrations of cis-1,2-DCE, PCE, and TCE, requiring samples to be diluted. There was a large disparity in the calculated results of diluted and undiluted analyses for soil and HydroPunch<sup>®</sup> groundwater samples.

A combination of factors, including heterogeneity of the soil composition, internal standard recovery, matrix interference, and/or dilution factors could account for the disparity in calculated results. The higher of the two VOC concentrations (undiluted or diluted) from the soil and HydroPunch<sup>®</sup> groundwater samples was used for evaluation in this report to be conservative. VOC concentrations from undiluted and diluted analysis for the groundwater monitoring well samples exhibited no significant variability between different dilutions; therefore, the concentrations from higher dilution analysis was reported. Sulfate and metals analysis also required dilutions. However, only the diluted concentrations were reported because there was no significant variability identified for the two analyses.



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## 8.0 GEOLOGY AND HYDROGEOLOGY

This section provides an update of the reported geologic and hydrogeologic conditions in the *West-Side Aquifers Treatment System [WATS] Optimization Completion Report* (Tetra Tech FW, Inc. [TiTFW], 2005c) using the geologic and geochemical data gathered during the Building 88 investigation. The Building 88 investigation area focused on the southern portion of the WATS area, but included some limited data throughout the WATS area. The WATS area is generally bounded by Hangar 1 to the east, McCord Avenue to the west, King Road to the north, and a line approximately 300 feet south of Wescoat Road to the south.

### 8.1 GEOLOGIC ENVIRONMENT

Regionally, the northwesterly trending Santa Clara Valley Basin contains interbedded alluvial, fluvial, and estuarine deposits to a depth of as much as 1,500 feet (Iwamura, 1980). Soils consist of varying combinations of clay, silt, sand, and gravel that represent the interfingering of estuarine and alluvial depositional environments during the late Pleistocene and the Holocene epochs. The fluvial soils were derived from the Santa Cruz highlands west of the basin and deposited on an alluvial plain bounded by alluvial fan deposits to the west and baylands to the northeast (Iwamura, 1980). In general, thicker intervals of sand and gravel and discontinuous intervals of clays and silt are found proximal to the upper alluvial fan deposits. The sand and gravel intervals are thin, and clay and silt intervals become thicker and laterally continuous close to the axis of the basin and distal from the fan deposits.

### 8.2 LOCAL GEOLOGY

The Building 88 investigation area subsurface is characterized by interbedded sand, silt, and clay deposits. The following descriptions are based on the continuous soil core boring logs and direct push technology (DPT) soil core. Lithologic symbols are based on the Unified Soil Classification System (USCS), as described in *Visual Classification of Soil* (Bureau of Reclamation, 1986) and the *2000 Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)* (American Society for Testing and Materials D2488-00). Color has been coded using the *Munsell Soil Color Charts* (Gretag Macbeth, 1990 revised edition).

Sand soils ranged from fine sand with silt to medium and coarse, subrounded to subangular sand with fine subangular gravel. Sand was often dark brown (10YR 4/3) or dark grayish-brown (2.5Y 4/2) in color. Sand soil thickness ranged from approximately 6 inches (SW-SM) in boring CC-88-2 at a depth interval of 26 to 26.5 feet below ground surface [bgs]) to approximately 7 feet

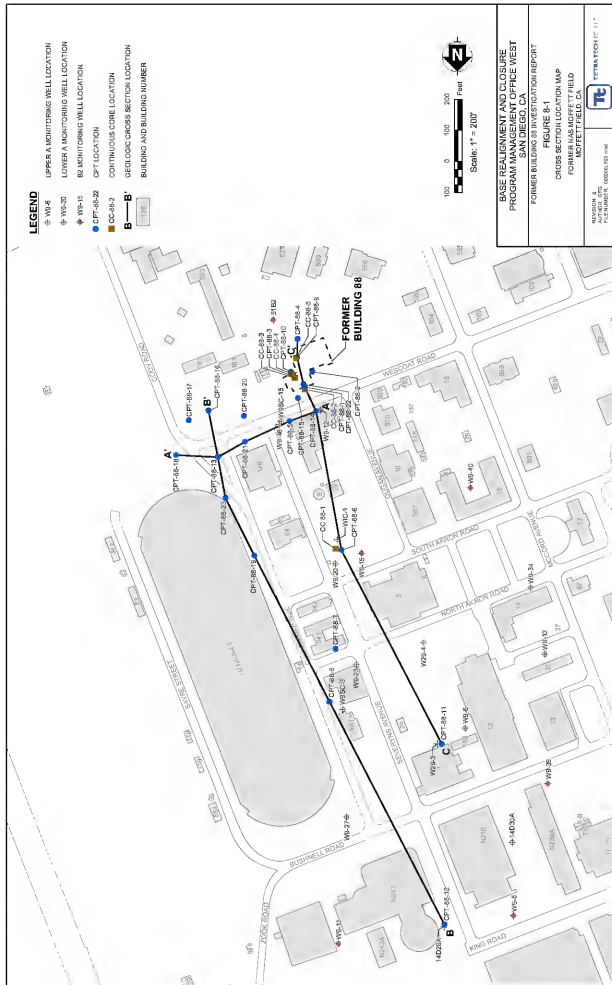
(soil sample from the DPT boring at location cone penetrometer testing CPT-88-1 at a depth interval of 29 to 36 feet bgs).

Silt soils ranged from fines with low to medium plasticity, to non-plastic fines with fine to medium sand. The low to medium plasticity observed in some silt soils was an indication of some clay content. Silt color ranged from variations of gray (5Y 5/1) and brown (10YR 5/3) to very dark gray (2.5Y 4/N). Groundwater was not always observable in silt soils with low plasticity with two exceptions; groundwater was observed in fine sand-filled fractures (possibly root casts) in soil samples from borings CC-88-3, CC-88-4, and CC-88-5 at approximately 36 to 37 feet bgs (see Appendix A, Photograph A9). Silt soil thickness range from 6 inches (ML in boring CC-88-1 at a depth interval of 5.5 to 6 feet bgs) to 12 feet (ML in boring CC-88-2 at a depth interval of 32 to 44 feet bgs).

Clay soils contained fines with high plasticity and fine to medium sand and occasionally with a trace amount of gravel. Clay soils were often dense and massive, up to 9.5 feet thick (CL in boring CC-88-2 at a depth interval of 1 to 11 feet bgs). Near the surface to approximately 20 feet bgs, clay was often dark grayish-brown (10YR 4/2) to black (2.5Y N2/). Clay soils often included intervals of subangular calcareous nodules ranging in size from coarse sand to fine gravel from near ground surface to total depth. The intervals of calcareous nodules were found in lighter colored soil, usually grayish-brown (10YR 5/2), within a darker clay soil. Groundwater was not observed in clay samples.

### 8.3 LOCAL HYDROSTRATIGRAPHY

Within the vicinity of WATS, the depositional environment was fluvial, characterized by north-trending anastomosing channels and discontinuous finer-grained interchannel and overbank deposits (TtFW, 2005a). The channels generally trend northwest to southeast, becoming more northerly in the vicinity of WATS. Thicker more continuous channels of sands and gravels trending northwest to southeast exist south of Highway 101, as discussed by Iwamura (1995). In order to better understand the subsurface conditions beneath and hydraulically downgradient of the Building 88 area, lithologic data obtained from the core and CPT borings were correlated. A series of hydrostratigraphic cross sections and a fence diagram were constructed to better understand the subsurface relationships of the interbedded permeable (coarse-grained) soil and non-permeable (fine-grained) soil layers (Figure 8-1). Cross sections A-A' through C-C' are included as Plate 8-1. The fence diagram is included as Plate 8-2. Coarse-grained soil distribution maps were generated based on the cross section correlations, combined with additional data from the *West-Side Aquifers Treatment System Optimization Completion Report* (TtFW, 2005c) and boring logs from adjacent groundwater monitoring wells. These maps are included as Figures 8-2 through 8-5. The coarse-grained soil distribution plots have been used to evaluate preferred pathways of dissolved phase chemical transport in the A aquifer. This



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FIGURE 8.1

**CONCLUSIONS**

CROSS SECTION LOCATION MAP

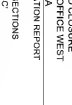
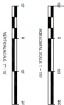
FORMER NAS MOFFETT FIELD  
MOFFETT FIELD, CA

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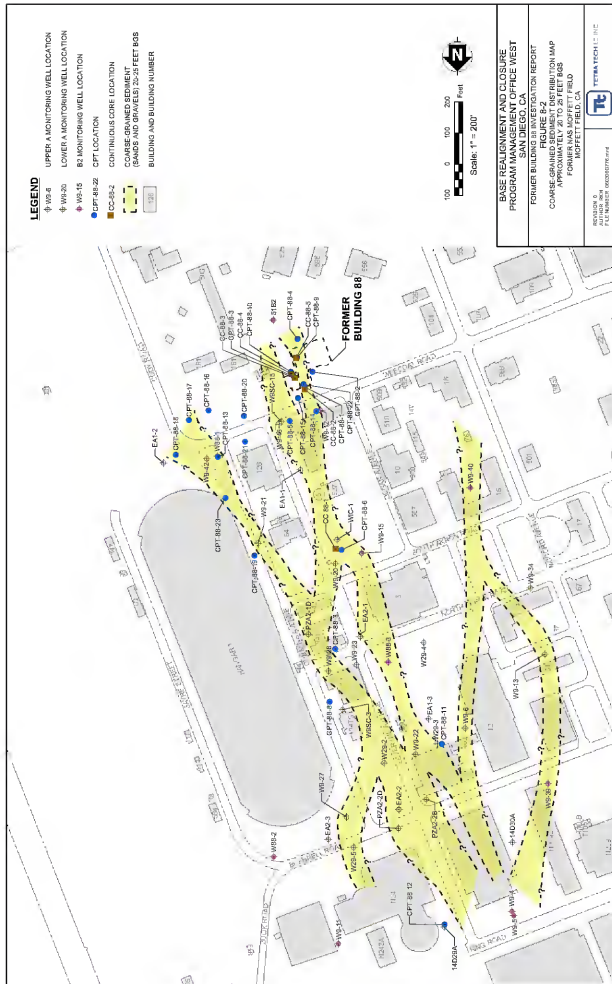


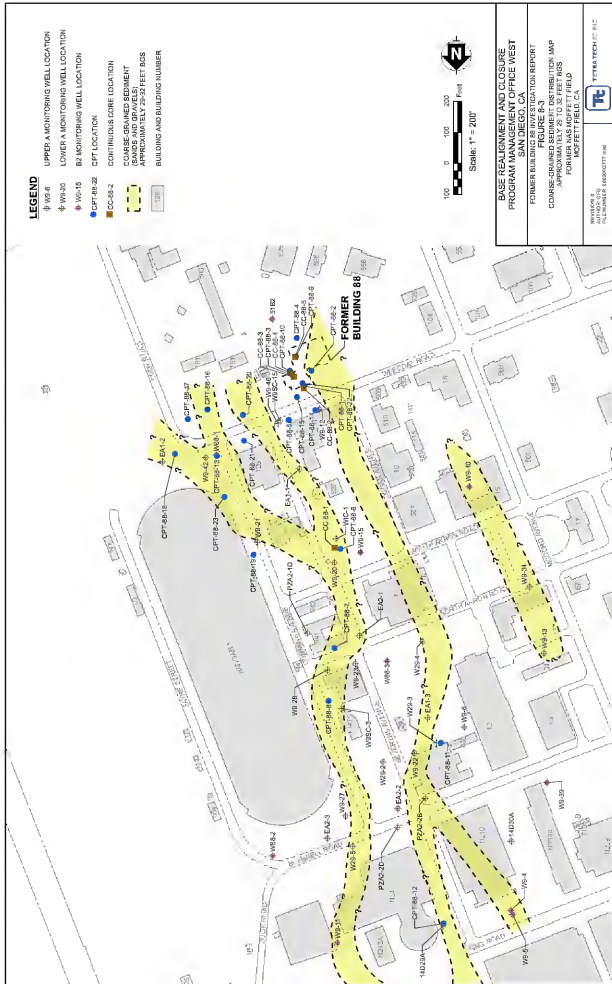
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# **LEGEND**

- UPPER A MONITORING WELL LOCATION
- LOWER A MONITORING WELL LOCATION
- BJ MONITORING WELL LOCATION
- CPT LOCATION
- CONTINUOUS CORE LOCATION
- COARSE GRAINED SEDIMENT (SANDS AND GRAVELS) 0-40 FEET US
- BUILDING AND BUILDING NUMBER



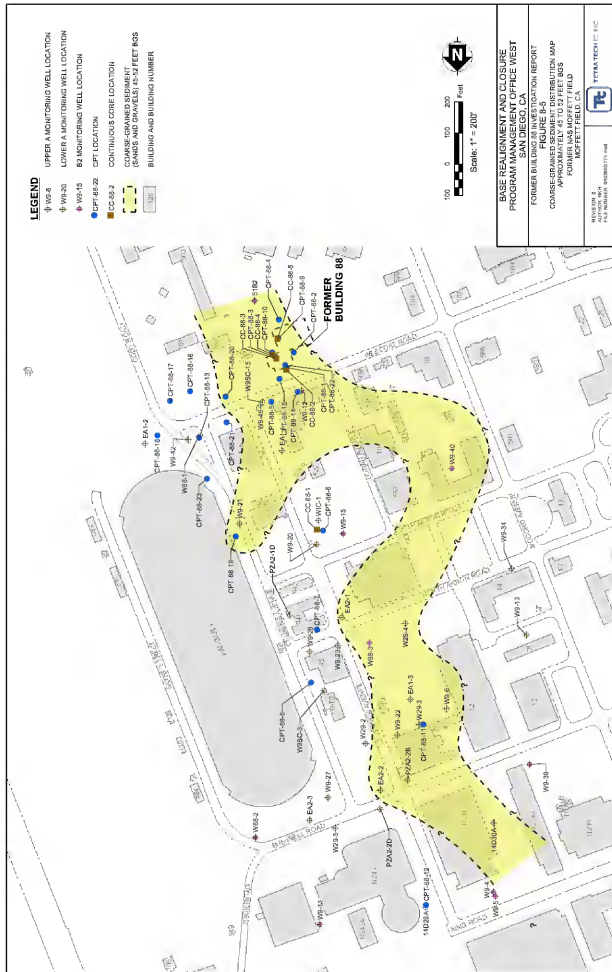
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FIGURE 8-4  
COARSE-GRAINED SEDIMENT  
APPROXIMATELY 0 TO 40 FEET US  
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TETRA TECH LLC INC.

DATE: 11/11/2011  
DRAWN BY: J. HARRIS  
FULL NUMBER: 1000000171-001



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FIGURE 8-5

CARSE-GRAINED SEDIMENT DISTRIBUTION MAP  
APPROXIMATELY 45 TO 52 FEET BGS

FORMER NAS MCNETT FIELD

VERSION 5  
AUTHOR: RICH  
FILE NUMBER 08260770 mod

information was used for the construction of the isoconcentration plots of tetrachloroethene (PCE) in the upper and lower portion of the A aquifer.

The cross sections and fence diagram were constructed using subsurface lithologic data from the 23 CPT borings. These data were translated to Unified Soils Classification System (USCS) codes (Table 8-1), and input manually into Rockworks™ 2004, an integrated geological visualization software package. Once the data were entered into the program, a 3-dimensional lithology solid model was generated. The three-dimensional lithology model uses a proprietary horizontal lithoblasting algorithm that assigns each model node (in this case, the XYZ dimensions were set to 15 feet by 15 feet by 0.25 feet) a lithology value (such as clay) starting at the nodes closest to the boreholes and expanding in ever-widening circles until a different lithology value is encountered (such as silt). The resulting lithology model was then viewed in three-dimensional space to ensure applicability of the modeling algorithm in keeping with the interpreted fluvial environment of deposition. The resultant channel morphology and overbank occurrences (discontinuous clays and silts) as depicted in the model were determined to be an adequate representation of fluvial environments of deposition. The cross sections represent slices through the solid model and illustrate the geology and hydrostratigraphy at the Building 88 area. The fence diagram composites the three cross sections shown on Figure 8-1.

The subsurface beneath the Building 88 investigation area is characterized by interbedded coarse-grained soil (sands and gravels) and fine-grained soil (silts and clays). Distribution of coarse- and fine-grained soil differ based on location and depth. The coarse-grained soil, where continuous, trends generally north-south and is consistent with the regional interpretation.

Cross section A-A' is oriented west-east, looking toward the north, extending from the Building 88 footprint toward the intersection of Wescoat Road and Cummins Avenue (traffic island), and is orthogonal to the north-south regional depositional trend (see Plate 8-1). As shown in cross section A-A', there appears to be no continuous coarse-grained soil from the Building 88 footprint east to the traffic island. The coarse-grained intervals are thicker and more prevalent toward the east (traffic island). Cross section B-B' is oriented northwest-southeast, looking toward the northeast, extending from the northernmost CPT location (CPT 88-12) along the Cummins Avenue sewer alignment to the traffic island. Cross section B-B' illustrates the apparent lack of continuous coarse-grained soil from the traffic island area to the north along the Cummins Avenue sewer alignment (between CPT-88-13 and CPT-88-19). Cross section C-C' is also oriented northwest-southeast, looking toward the northeast, from CPT-88-11 to the vicinity of the Building 88 area and is located to the west and roughly parallel to cross section B-B'. Only one coarse-grained interval (at approximately -22 to -24 feet mean sea level) shows lateral continuity between CPT 88-11 to the north and the Building 88 area to the south.

The upper 17 feet of the investigation area contains mostly fine-grained soil, with isolated native coarse-grained deposits. Anastomosing coarse-grained soil channels are observed from approximately 20 feet to approximately 32 feet bgs, and are interbedded with fine-grained overbank deposits (see Figures 8-2 and 8-3). These channels are observed at depth intervals of approximately 20 to 25 feet bgs and 29 to 32 feet bgs, and are encased in fine-grained soil. The channels are depicted as continuous, but based on the cross sections and fence diagram (see Plates 8-1 and 8-2) these channels can also be interpreted as a series of laterally and vertically interconnected segments of channels. The depicted locations of the channels in the areas of the WATS extraction wells EA1-1, EA1-2, and EA1-3 are consistent with historic pumping rates from those wells (TtFW, 2005b). The thickness of the channels varies spatially, but averages approximately 2 feet. Based on the cross sections and fence diagram (see Plates 8-1 and 8-2), there appears to be little to no single coarse-grained layer vertically connecting these two intervals. However, based on water levels shown in the upper portion of the A aquifer in December 2004 in the area of WATS extraction well EA2-2 (TtFW, 2005b), there is hydraulic communication between the lower portion of the A aquifer and the upper portion of the A aquifer.

Two relatively continuous channel deposits of coarse-grained soil are observed from approximately 40 to 46 feet bgs and 45 to 52 feet bgs in the western portion of the study area (see Figures 8-4 and 8-5). The channels are depicted as continuous, but based on the cross sections and fence diagram (see Plates 8-1 and 8-2) these channels can also be interpreted as a series of laterally and vertically interconnected segments of channels. The depicted locations of the channels in the area of the WATS extraction wells EA2-1 and EA2-2 are consistent with historic pumping rates from those wells (TtFW, 2005b). The deposits range in thickness from approximately 1 to 6 feet, and are separated by approximately 1 to 4 feet of silt. Based on water levels shown in the upper portion of the A aquifer in December 2004, in the area of WATS extraction well EA2-2 (TtEC, 2005b), there is hydraulic communication between the lower portion of the A aquifer and the upper portion of the A aquifer.

The distribution of coarse-grained and fine-grained sediment layers above approximately 35 feet bgs (analogous to the upper portion of the A aquifer) and below 35 feet bgs (analogous to the lower portion of the A aquifer) suggests two separate fluvial depositional environments. The discontinuous nature of the coarse-grained layers encased in fine-grained soil from surface to 35 feet bgs is typical of a braided fluvial environment. The deposits apparent below 40 feet bgs may be indicative of a floodplain environment. This interpretation of differing hydrogeologic conditions is consistent with what was observed during pump testing, as described in the *West-Side Aquifers Treatment System Optimization Completion Report* (TtFW, 2005c).

## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 8-1

### CPT SOIL CLASSIFICATION FOR CROSS SECTIONS FORMER NAS MOFFETT FIELD MOFFETT FIELD, CA

CPT Description	Model Input *
Clay	CL (clay)
Silty clay	CL (clay)
Clayey silt	ML (silt)
Silt	ML (silt)
Sandy silt	ML (silt)
Silty sand	SM (silty sand)
Sand	SP (poorly graded sand)
Gravelly sand	GP/GM (poorly graded gravel with silt and sand)

**Notes:**

\* Unified Soil Classification System group symbols were used for generalized Rockworks™ 2004 model input.

**Abbreviations and Acronyms:**

CA – California

CPT – cone penetrometer testing

NAS – Naval Air Station

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## 8.4 CLASSIFICATION OF GROUNDWATER

Groundwater samples collected from the DPT borings were analyzed for major cations (sodium, potassium, calcium, and magnesium) and major anions (chloride, sulfate, bicarbonate, and nitrite), as described in Section 4.0. Results were listed by location and depth in Table 4-1. To assess the completeness of the ionic data, an ionic balance for each set of samples was calculated using Rockworks™ 2004. The program calculates ionic balance using the following equation, with ion concentration expressed as milliequivalents per liter.

$$\frac{\text{cations} - \text{anions}}{\text{cations} + \text{anions}} \times 100 = \text{ionic balance as a percentage}$$

Values within 5 to 10 percent are considered balanced. Results of the ionic balance are presented in Table 8-2 and indicate that none of the groundwater samples collected during this investigation are within 5 to 10 percent. For all of the groundwater samples, there was a positive imbalance (an apparent large mass of cations). The imbalance appears to be caused by the method of groundwater sample collection (HydroPunch® using a bailer). The field geologist reported that the samples were turbid, but followed the Sampling and Analysis Plan to the *Final West-Side Aquifers Treatment Systems Optimization Work Plan Addendum 1* (TtFW, 2005a), which did not specify field filtering. The groundwater samples for cation analysis were stabilized (acidified) in the field, which resulted in an artificial increase in mass of the cations. The results described below should be used with caution.

The majority of the data suggest a calcium/sulfate water, with the outliers representing samples collected from the DPT boring at location CPT-88-13 (the location with the highest tetrachloroethene concentrations) or those collected from the DPT boring at location CPT-88-12 (the location furthest downgradient of the source areas). The data do not suggest spatial variance (vertically or laterally) and limited variance in chemical composition. The similarity in water vertically and laterally is interpreted to suggest that there is hydraulic communication vertically and laterally within the A aquifer.

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## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 8-2

**CATION/ANION BALANCE DATA  
FORMER NAS MOFFETT FIELD  
MOFFETT FIELD, CA**

Location and Depth Interval	Na (mg/L)	K (mg/L)	Ca (mg/L)	Mg (mg/L)	Cl (mg/L)	HCO <sub>3</sub> (mg/L)	CO <sub>3</sub> (mg/L)	SO <sub>4</sub> (mg/L)	Fe (mg/L)	NO <sub>3</sub> (mg/L)	Ion Balance (percent) <sup>1</sup>
CPT-88-1 12-14	48.4	11.6	341	110	51.7	418	0	419	18.5	3.9	26.2
CPT-88-1 18-20	41.4	9.4	254	80.2	53.8	430	0	303	55	4.12	22
CPT-88-1 24-26	45.5	9.6	435	103	44.2	429	0	260	23.1	6.93	41.6
CPT-88-1 38-40	35	4.8	206	63.6	42.9	288	0	303	9.4	5.04	17.7
CPT-88-1 46-48	36.9	6.1	225	62.9	40.1	328	0	277	17.4	7.06	21
CPT-88-1 53-55	41	11.7	660	127	37.7	269	0	144	10.8	8.27	68.8
CPT-88-2 10-13	43	9.2	262	88.7	47.5	399	0	374	22.3	6.66	19.5
CPT-88-2 22-25	45.1	6.2	1430	138	44.2	445	0	270	156	0.58	72.9
CPT-88-2 38-40	62.7	282	5720	2490	42.2	335	0	350	6010	6.23	96.2
CPT-88-2 45-47	42.5	10.8	403	116	41.2	352	0	354	50.8	6.62	40.3
CPT-88-2 52-54	38.9	11.9	442	76.7	37.7	279	0	153	10.5	8.08	55.4
CPT-88-3 10-14	45.8	7.8	438	137	47.1	410	0	407	48.7	3.14	38.3
CPT-88-3 25-27	42.5	7.6	636	169	44.5	373	0	305	239	3.77	60.8
CPT-88-3 41-43	38.3	6.4	392	88.1	40.9	356	0	403	21.8	7.23	31.3
CPT-88-3 46-48	41.3	6.3	361	92.3	42.4	342	0	319	33.2	9.31	36.3
CPT-88-4 10-12	45.2	10.9	475	117	49.2	400	0	332	35.7	2.58	42.5
CPT-88-4 19-21	45.1	7	438	118	42.4	438	0	250	212	3.5	50.5
CPT-88-4 24-26	49.1	10.1	422	74.6	41.7	0	25.2	223	43.8	15.7	64.8
CPT-88-4 42-44	45.8	13.8	602	115	40.7	354	0	370	20.9	8.58	48.8
CPT-88-4 49-51	43.9	8	410	99.3	40.6	353	0	361	22.3	6.48	37.2
CPT-88-5 23-25	47.5	6.7	705	128	41.1	406	0	478	21.1	8.84	46.5
CPT-88-5 46-48	41.4	8.5	528	89	39	293	0	240	14.8	7.43	53.7
CPT-88-5 50-52	37.8	4	349	75.4	38.7	286	0	249	17.5	66	40.7
CPT-88-6 20-23	44.5	7.3	436	140	37.5	410	0	256	39.9	7.28	47.5
CPT-88-6 29-31	43.5	5.2	313	101	39	396	0	271	29.1	7.58	34.2
CPT-88-6 42-44	44.1	12.8	671	158	39.7	299	0	254	27.7	8.36	62.9
CPT-88-6 47-50	36.1	3.2	205	66.5	39.5	306	0	253	18.9	7.69	22.5
CPT-88-7 10-12	46.9	12.2	829	111	27	369	0	199	20.4	9.63	66.1
CPT-88-7 23-25	46.1	9.3	502	134	31.2	417	0	223	43.9	2.66	52.7
CPT-88-7 30-32	51.7	8.9	1440	199	30.9	371	0	240	7.8	5.85	76.8
CPT-88-7 39-42	44.3	11.9	340	105	37.4	368	0	295	21.4	3.34	36.8
CPT-88-8 10-14	52.7	13	1100	142	26.6	349	0	194	10.8	11.5	73.8
CPT-88-8 18-20	45.3	13.7	416	96.4	34.8	400	0	255	76.9	2.54	44.9
CPT-88-8 24-26	43	5.3	219	72.5	33.4	356	0	256	28.6	2.54	24.4
CPT-88-8 32-34	46.1	6.6	678	125	35.2	336	0	251	13.5	6.57	59.9
CPT-88-8 54-55	43.3	13.6	241	97	35.6	222	0	94.9	57.9	2.82	57.2
CPT-88-9 11-13	46	7	370	110	42.4	426	0	238	21.8	6.49	39.8
CPT-88-9 18.5-20.5	42.7	5.4	378	117	41.4	414	0	214	18.9	1.34	43
CPT-88-9 22-24	48.4	12.2	596	144	42.5	432	0	220	17.7	13.8	55.3
CPT-88-9 42-44	43.9	9.8	431	99.8	41.2	333	0	358	26.3	7.61	40
CPT-88-10 10-12	45.7	8.8	398	119	43.8	403	0	462	26.1	2.21	30.5
CPT-88-10 17-19	40.6	4.9	471	89.5	43.2	444	0	244	65	6.58	44.2

## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 8-2

**CATION/ANION BALANCE DATA  
FORMER NAS MOFFETT FIELD  
MOFFETT FIELD, CA**

Location and Depth Interval	Na (mg/L)	K (mg/L)	Ca (mg/L)	Mg (mg/L)	Cl (mg/L)	HCO <sub>3</sub> (mg/L)	CO <sub>3</sub> (mg/L)	SO <sub>4</sub> (mg/L)	Fe (mg/L)	NO <sub>3</sub> (mg/L)	Ion Balance (percent) <sup>a</sup>
CPT-88-10 23-25	43.9	6.6	408	109	43.3	440	0	260	29.1	3.95	40.2
CPT-88-10 43-45	41.5	7.8	489	96	41.5	341	0	339	19.7	5.55	42.2
CPT-88-10 47-49	43.1	9.2	788	125	40.1	323	0	331	12.5	5.89	59.3
CPT-88-11 10-13	47.7	9.2	500	140	20.2	382	0	213	28.2	14.9	55.9
CPT-88-11 18-20	48.7	14.7	491	89.5	39.2	374	0	246	4.6	8.08	47.3
CPT-88-11 31-33	48.3	14.4	401	72.4	37.7	362	0	244	8.7	4.31	40.8
CPT-88-11 45-47	45.1	8	463	118	37.1	331	0	233	7.4	4.46	51.4
CPT-88-12 17-19	43.1	3.5	206	88	33.8	438	0	183	19.1	4.14	25.6
CPT-88-12 24-26	49	11.8	482	89.1	36.8	350	0	215	19.7	3.35	50.8
CPT-88-12 31-33	51.1	9.1	537	91.7	41	326	0	256	14.7	4.17	51.9
CPT-88-12 54-56	49.4	9.2	356	67.2	19.5	237	0	38.5	24.1	3.23	67
CPT-88-13 14.5-16.5	43.8	7.4	390	94.6	59.9	330	0	476	37.3	2.43	28.7
CPT-88-13 17-19	45.5	15.5	510	113	48.7	328	0	497	28.1	2.62	38.1
CPT-88-13 29-31	42.1	5.7	278	75.5	41.1	326	0	422	13.5	4.38	19.2
CPT-88-13 39-41	41.7	7.8	401	65.5	36.1	260	0	292	10.9	2.57	42
CPT-88-13 57-60	45	10.5	284	53.9	25.2	230	0	91.9	12	2.65	53.8
CPT-88-14 10-12	58.1	12	552	127	41.6	366	0	394	19.3	5.22	46
CPT-88-14 32-34	45.1	11.2	424	132	41.89	376	0	648	22.9	8.19	25.5
CPT-88-14 42-44	40.3	7.2	194	57.9	42.3	322	0	263	8.1	11.7	16.5
CPT-88-14 45.5-47.5	42.6	11.1	312	85.7	42.3	254	0	197	22.9	7.93	46
CPT-88-15 10-12	61.8	8.3	394	115	47.4	274	0	289	47	2.53	48
CPT-88-15 16-19	55.7	3.8	445	72.1	52.3	288	0	268	95.3	2.34	48.6
CPT-88-15 36-38	65.3	39.5	751	195	43.3	280	0	283	133	8.01	68.3
CPT-88-15 44-46	42.9	12.7	346	103	39.5	284	0	185	49.2	8.85	51.1
CPT-88-15 49-52	44.7	16.6	457	117	39.4	271	0	166	15.1	11	59.4
CPT-88-15 56-59	45.4	12.2	199	39.3	40	91.2	8.8	183	12.9	3.5	40.6
CPT-88-16 8-10	49.4	9.6	533	121	28.2	681	0	125	78.6	2.41	48.3
CPT-88-16 13-15	40.4	6.3	259	86.5	41.6	334	0	411	39.5	2.43	21.2
CPT-88-16 22-24	45.8	30.3	536	158	42.5	283	0	363	235	2.59	58.4
CPT-88-16 32-34	40.4	7.4	490	85.3	39.1	275	0	314	10.3	3.29	47.1
CPT-88-16 35-37	37.4	12.2	198	83	35.6	240	0	213	35.8	2.61	36
CPT-88-16 49-51	40.5	10.9	385	89.3	31.2	226	0	172	12.5	4.52	56.1
CPT-88-17 19-21	41.5	13.5	322	98	41.3	388	0	509	16.3	2.39	19.4
CPT-88-17 32-34	39.3	9.3	283	156	41.7	339	0	417	93.6	5.74	35.3
CPT-88-18 8-10	59.5	8.3	1060	263	39.3	388	0	497	177	4.16	64.9
CPT-88-18 14-16	44.1	8	458	110	35.6	361	0	459	12.1	7.53	35.3
CPT-88-18 18-20	48.1	13.3	825	169	38.5	367	0	493	26.8	7.02	54.2
CPT-88-18 24-25	47.7	7.2	1370	139	40.8	376	0	474	1.2	5.89	65.4
CPT-88-18 30-32	46.1	10.8	775	142	40.5	330	0	388	7.2	4.58	56.7
CPT-88-18 42-44	37.6	4.4	229	50.7	32.3	240	0	185	10.5	2.97	34.2
CPT-88-18 55-56	43.4	7.3	277	64	30.7	219	0	119	31.5	2.65	52.6
CPT-88-19 6-9	48.7	8.6	494	145	32	281	0	368	17.8	7.4	50
CPT-88-19 11-13	61.7	14.1	801	188	39.3	293	0	400	639	2.72	70.2

## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 8-2

**CATION/ANION BALANCE DATA  
FORMER NAS MOFFETT FIELD  
MOFFETT FIELD, CA**

Location and Depth Interval	Na (mg/L)	K (mg/L)	Ca (mg/L)	Mg (mg/L)	Cl (mg/L)	HCO <sub>3</sub> (mg/L)	CO <sub>3</sub> (mg/L)	SO <sub>4</sub> (mg/L)	Fe (mg/L)	NO <sub>3</sub> (mg/L)	Ion Balance (percent) <sup>a</sup>
CPT-88-19 18-20	48.4	6.7	1050	123	38.7	289	0	371	140	2.34	67.5
CPT-88-19 22-24	78.9	20.2	758	127	36.3	234	0	310	227	2.37	68.4
CPT-88-19 27-30	40.8	7.1	342	90	36	249	0	300	62.6	5	43.3
CPT-88-19 47-50	41.4	7.5	268	78	33.8	239	0	205	17	3.8	42
CPT-88-20 10-12	40.7	7.5	458	123	28.8	320	0	380	22.1	1.1	43.8
CPT-88-20 19-21	39.8	4.8	424	81.4	37.4	321	0	324	65	0	42.1
CPT-88-20 28-30	36.8	3	244	60.3	34	257	0	239	11.2	1.35	30.9
CPT-88-20 39-41	41.5	7.5	483	123	35.8	268	0	263	23.3	3.11	54.6
CPT-88-20 45-47	35.9	2.8	162	47.5	32.8	244	0	186	8	3.09	22.5
CPT-88-20 51-53	45	8	503	125	29.4	233	0	146	9.2	4.27	66.3
CPT-88-21 10-12	36.6	7.2	316	98.3	32.4	324	0	468	13.6	4.03	24.1
CPT-88-21 15-17	38.9	19.4	370	85.6	31.3	274	0	159	235	14.8	61.2
CPT-88-21 23-25	40.1	11.8	229	74.2	38.3	251	0	239	193	1.11	44.5
CPT-88-21 32-34	35	5.8	1260	115	35.4	259	0	222	6.2	2.95	76.5
CPT-88-21 40-42	38.7	13.4	323	79.7	37.2	277	0	258	20.5	4.47	39.8
CPT-88-21 51-53	33.2	8.1	317	58.1	35.9	245	0	229	13.4	3.9	39.8
CPT-88-22 11-13	41.8	6.3	290	96.5	43	401	0	416	19.1	11.7	20.8
CPT-88-22 18-20	38.5	4.8	334	82.7	47	432	0	315	131	0	33.4
CPT-88-22 24-26	42	15.8	526	87.4	42.6	423	0	251	14.7	4.1	46.1
CPT-88-22 46-48	37.4	13.4	363	59	37.8	296	0	208	18.3	7.83	42.8
CPT-88-22 51.5-53.5	37.6	12.9	612	135	36.4	264	0	137	6.3	8.26	68.5
CPT-88-23 15-17	45	13.1	397	99.9	35.7	303	0	414	16.7	0.681	35.9
CPT-88-23 18.5-20.5	42.9	9.4	357	96.9	40	317	0	422	26.3	4.43	31.2
CPT-88-23 22-24	46.7	9.3	263	81.4	40.4	297	0	402	21.2	4.12	22.8
CPT-88-23 26.5-28.5	45	8.8	690	97.2	39.2	288	0	396	11.8	3.98	52.4
CPT-88-23 30-32	45.3	6.8	536	89	38.7	272	0	354	5.7	7.64	47.6

**Notes:**

<sup>a</sup> Ionic balance calculated using the following equation.

$$\frac{\text{cations} - \text{anions}}{\text{cations} + \text{anions}} \times 100 = \text{ionic balance as a percentage}$$

**Abbreviations and Acronyms:**

CA - California  
 Ca - calcium  
 Cl - chloride  
 CO<sub>3</sub> - carbonate  
 Fe - iron  
 HCO<sub>3</sub> - bicarbonate  
 K - potassium  
 Mg - magnesium  
 mg/L - milligrams per liter  
 Na - sodium  
 NAS - Naval Air Station  
 NO<sub>3</sub> - nitrite  
 SO<sub>4</sub> - sulfate

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## **9.0 SOURCE EVALUATION AND CONTAMINANT FATE AND TRANSPORT**

For this investigation, soil with tetrachloroethene (PCE) concentrations greater than the U.S. Environmental Protection Agency (EPA) Region 9 residential Preliminary Remediation Goal (PRG) of 480 micrograms per kilogram ( $\mu\text{g/kg}$ ) (EPA, 2004b) was considered a PCE source area. The EPA Region 9 residential soils PRG of 480  $\mu\text{g/kg}$  for PCE was used for the site screening value for soils. The residential soils PRG's role in site screening is to help identify areas that may require further attention. The residential soils PRG for PCE is slightly lower than the cleanup level identified in the Middlefield-Ellis-Whisman Record of Decision (soil remediation standard for PCE of 100 times the corresponding groundwater value of 5 micrograms per liter [ $\mu\text{g/L}$ ] – 500  $\mu\text{g/kg}$ ). It is likely that soil with PCE concentrations greater than 480  $\mu\text{g/kg}$  was historically contaminated through direct contact with PCE or PCE-containing wastewater migrating from a leaking floor drain, sump, or sewer. Two PCE source areas were identified and confirmed during the investigation: the eastern and northern portion of the Building 88 footprint and the traffic island located at the corner of Cummins Avenue and Wescoat Road (Figure 9-1).

### **9.1 PCE SOURCE AREA SOILS**

The following sections describe two source areas identified and confirmed during the investigation.

#### **9.1.1 Building 88 Area**

PCE was used at the former Building 88, the historic base dry cleaners. PCE was detected at concentrations up to 1,200 parts per billion by volume (ppbv) during the soil gas survey, primarily in the eastern portion of the building footprint (see Section 2.3). Eight direct push technology (DPT) borings and four continuous soil cores were advanced within, or adjacent to, the Building 88 footprint to characterize the extent of PCE in subsurface soils. PCE concentrations in soil greater than 480  $\mu\text{g/kg}$  were detected in the DPT borings at cone penetrometer testing (CPT) locations CPT-88-1, CPT-88-3, and CPT-88-22, and in coreholes CC-88-2 and CC-88-3. CPT-88-1 and CPT-88-22 were located along a former drain line upstream of Sump 66. CC-88-2 was located within the former Sump 66 area. CPT-88-3 and CC-88-3 were located in the north excavation area, which is in the eastern portion of the Building 88 footprint. Tables 3-2 and 4-2 provided the specific PCE concentrations in soil at depth by location. Cross sections through the Building 88 footprint (Figure 9-2) showing PCE concentrations in soil are presented on Plate 9-1. PCE isoconcentration contours of soil at

various depth intervals are presented on Plates 9-2 and 9-3. PCE isoconcentrations of soil have been developed in order to evaluate environmental response actions.

The maximum PCE concentration in soil samples collected beneath the Building 88 footprint were located in the area of Sump 66. PCE was detected at a concentration of 6,700 µg/kg in a clayey silt soil sample from the DPT boring at location CPT-88-22 at 12 to 13 feet below ground surface (bgs) (see Plate 9-2). Lithology of CPT logs are not based on the Unified Soil Classification System (USCS); thus, a USCS lithologic symbol is not applied in the following discussion. The DPT boring at location CPT-88-22 was installed near a former floor drain that discharged to Sump 66. PCE concentrations in soil decreased with depth at location CPT-88-22 and were less than 480 µg/kg at a depth of 20 feet bgs in a clayey silt. PCE concentrations remained less than 480 µg/kg to the total depth investigated.

Eight feet to the north of location CPT-88-22, along the same drain line and adjacent to Sump 66, soil samples from the DPT boring at location CPT-88-1 had similar PCE soil concentrations at shallow depths. PCE concentrations in soil samples from the DPT boring at location CPT-88-1 ranged from 6,400 µg/kg at 12.5 to 13.5 feet bgs in a silty clay to 650 µg/kg at 30.5 to 31.5 feet bgs in a clayey silt. However, PCE concentrations in soil samples from the DPT at location CPT-88-1 were below 480 µg/kg from 18.5 to 19.5 feet bgs in a sandy silt and 24.5 to 25.5 feet bgs in sand. The PCE concentration in the soil sample collected from the DPT boring from location CPT-88-1 was less than 480 µg/kg at the subsequent sampling depth of 38.5 to 39.5 feet bgs in a silt and remained less than 480 µg/kg to the total depth investigated.

Eight feet further to the north of location CPT-88-1, near Sump 66, PCE soil concentrations of 2,300 µg/kg, 1,300 µg/kg, and 2,000 µg/kg were detected in soil samples from boring CC-88-2 from 18.5 to 19 feet bgs in a silty sand (SM), 25 to 25.5 feet bgs in a silt (ML), and 26 to 26.5 feet bgs in sand to silty sand (SW-SM), respectively. Lithologic symbols are based on the USCS, as described in *Visual Classification of Soil* (Bureau of Reclamation, 1986) and the *2000 Standard Practice for Description and Identification of Soils (Visual-Manual Procedures)* (American Society for Testing and Materials D2488-00). The PCE concentration in soil in boring CC-88-2 was less than 480 µg/kg at the subsequent sampling depth of 41 to 41.5 feet bgs in a silt (ML) and remained less than 480 µg/kg to total depth.

The combined results of soil samples from the DPT boring at location CPT-88-1 and the core boring CC-88-2 indicate the presence of a potential continuing source area that may require further attention from approximately 10 to 35 feet bgs in the area of Sump 66 (see Plates 9-1 through 9-3). The highest PCE concentrations were detected in fine-grained soil (silt and clay) located at shallow depths closest to the former sources (drain line and Sump 66). It appears that PCE distribution is related more to proximity to the former source than to soil type in the Sump

# **LEGEND**

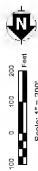
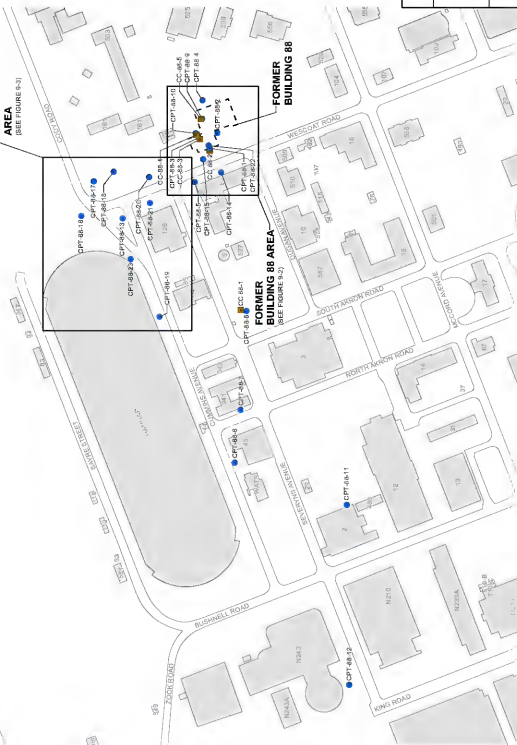
● CPT/PT LOCATION

■ CONTINUOUS CORE BORING

■ BUILDING AND BUILDING NUMBER

138

TRAFFIC ISLAND  
AREA  
(SEE FIGURE 8-2)



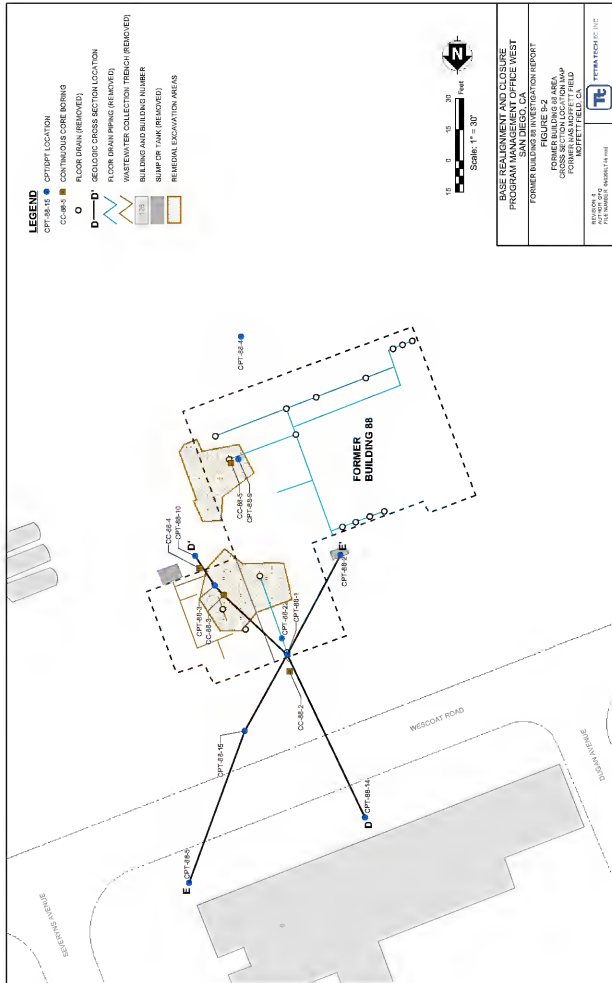
BASE RECLAMATION AND CLOSURE  
PROGRAM MANAGEMENT OFFICE WEST  
PROGRAM MANAGEMENT OFFICE WEST  
FORMER BUILDING 88 INVESTIGATION REPORT

FIGURE 9-1  
SOURCE AREA LOCATION MAP  
FORMER BAS INSPECTION FIELD  
INSPECTION FIELD

TETRA TECH INC.



PROJECT NO. 1  
FILE NUMBER: 100-100-100-100



**BASE REALIGNMENT AND CLOSURE  
PROGRAM MANAGEMENT OFFICE WEST  
SAN DIEGO, CA**

FORMER BUILDING 88 INVESTIGATION REPORT

FORMER BUILDING 88 AREA  
CROSS SECTION LOCATION MAP  
FORMER NAS MOFFETT FIELD  
MOFFETT FIELD, CA

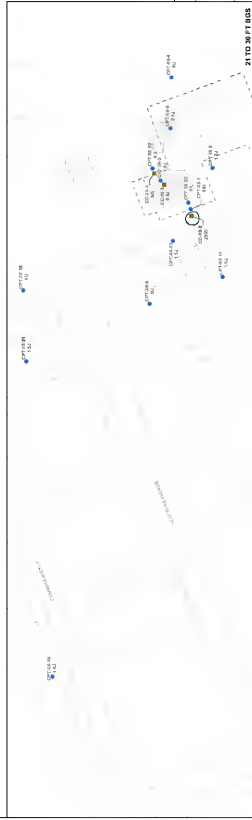
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AUTHOR GFG  
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66 area. However, since only fine-grained soil was present at 12 to 13 feet bgs, a comparison of PCE distribution to soil type is not possible.

PCE soil contamination at concentrations greater than 480 µg/kg was also detected in the northern remedial excavation area. The previous soil removal did not extend below the water table, which was approximately 8 feet bgs at that time. PCE soil concentrations were detected above 480 µg/kg in post-excavation samples, as described in Section 1.2.5. CC-88-3 and a DPT boring at CPT-88-3 were located in the northern remedial excavation area (see Figure 9-2). PCE concentrations in soil of 5,200 µg/kg at 14 to 14.5 feet bgs in a sand (SP) and 3,500 µg/kg at 12 to 13 feet bgs in clay were detected at CC-88-3 and from the DPT boring at location CPT-88-3, respectively. PCE contamination in soil at concentrations greater than 480 µg/kg extended to a maximum depth of 19.5 feet bgs in a sand (SP) soil sample in boring CC-88-3 and 13 feet bgs in a clay soil sample from the DPT at location CPT-88-3. The combined results of soil samples from the DPT boring at locations CPT-88-3 and CC-88-3 indicate the presence of a potential continuing source area that may require further attention from approximately 8 to 20 feet bgs in the northern excavation area (see Plates 9-1 and 9-2). PCE appears to be present at high concentrations in both fine-grained and coarse-grained soil at shallow depths in the northern excavation area.

Soil with PCE concentrations greater than 480 µg/kg extends to a maximum depth of approximately 35 feet bgs in the Sump 66 vicinity. It ranges from 20 to 32 feet bgs along a former floor drain line upstream of Sump 66 and approximately 20 feet bgs underlying the northern excavation area. The estimated volume of soil with PCE concentrations greater than 480 µg/kg within the Building 88 area is 775 cubic yards (cu yd). The estimated mass of PCE in the soil concentrations greater than 480 µg/kg within the Building 88 area is 2.5 pounds. PCE mass in soil was estimated by first calculating soil volume for each of the areas shown on Plates 9-2 and 9-3. The volume was multiplied by 0.7 to account for void space. The soil volume was then multiplied by the geometric mean of the PCE concentration contour intervals (the highest PCE concentration was used for the upper contour at the maximum interval).

Shallow PCE contamination in soil in the Building 88 area does not extend laterally much farther than the building footprint. CPT-88-5 and CPT-88-14 were located to the north of the Building 88 area, north of Wescoat Road (see Figure 9-2). PCE was not detected above the laboratory reporting limit of 6 µg/kg in shallow soil samples collected at 10.5 to 11.5 feet bgs and 23.5 to 24.5 feet bgs from the DPT boring at location CPT-88-5 or 10 to 11 feet bgs and 26 to 27 feet bgs from the DPT boring at location CPT-88-14.

The former dry cleaning facility had numerous wastewater collection trenches, floor drains, subsurface piping and sumps. Whether through cracks in the wastewater collection trenches, floor drains, subsurface piping and/or sump, PCE was released into the subsurface. The results of

previous investigations and removal actions (see Section 1.0), the soil gas survey (see Section 2.0), and the findings from the soils analysis suggest releases occurred in two areas: in the area of Sump 66 and in the eastern section of the Building 88 footprint. The majority of PCE soil contamination greater than the residential soils PRG of 480 µg/kg is relatively shallow, extending to approximately 20 feet bgs over most of the impacted area, and to 35 feet bgs near Sump 66. Where present near the source areas, coarse-grained soil contained higher PCE concentrations than adjacent finer grained soil. However, the overwhelming majority of the soil from 10 to 35 feet bgs are fine-grained (silts and clays). Thus, the majority of the PCE concentrations greater than 480 µg/kg is found in finer-grained soil.

### 9.1.2 Traffic Island Area

Elevated PCE soil gas concentrations were detected along the sewer alignment in the downstream direction (to the east and north) from the Building 88 footprint (see Section 2.3). Seven CPT/DPT boring locations were placed adjacent to the sewer alignment to determine if PCE contamination was present, and if present, to define the extent of PCE in the subsurface. CPT/DPT borings were advanced at location CPT-88-19 adjacent to the location of soil gas probe SG-88-4, where the highest soil gas PCE concentration had been detected (11,000 ppbv). CPT/DPT borings were advanced at location CPT-88-13 adjacent to the location of soil gas probe SG-88-42, where the second highest soil gas PCE concentration had been detected (5,900 ppbv). PCE concentrations in soil greater than 480 µg/kg were detected from the DPT borings at locations CPT-88-13, CPT-88-19, and CPT-88-23 (along the northern portion of Cummins Avenue). Geologic cross sections through the traffic island area (Figure 9-3) are presented on Plate 9-4. PCE isoconcentration contours at various depth intervals are presented on Plates 9-5 and 9-6.

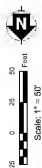
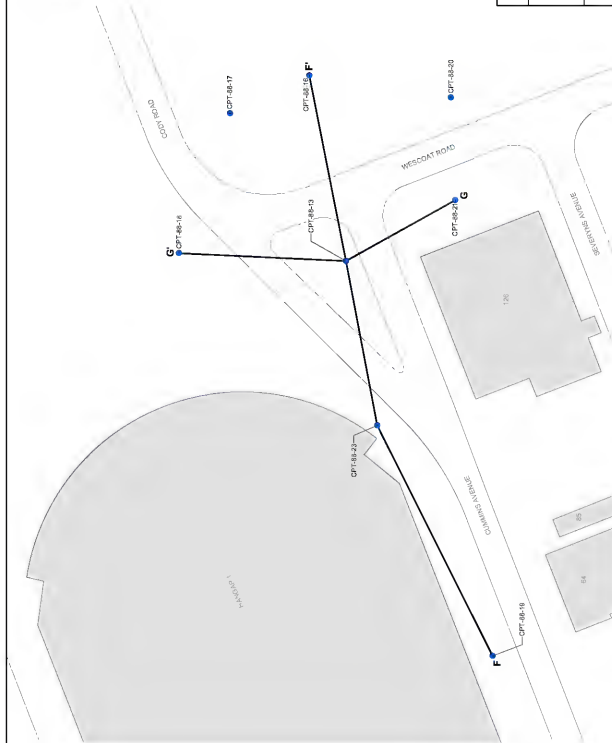
The maximum PCE concentration in soil samples collected along the northern portion of Cummins Avenue were located within the traffic island area at the corners of Cummins Avenue, Wescoat Road, and Cody Road. PCE was detected in all soil samples collected from the DPT boring at location CPT-88-13 and the subsequent deeper over-drilled boring for monitoring well W88-1. PCE concentrations ranged from 580 µg/kg in sand at 29.5 to 30.5 feet bgs, to 10,000 µg/kg in clay (CL) at 70 to 70.5 feet bgs. PCE was detected at 8,700 µg/kg in sand with silt and gravel (SW- SM) from 73 to 73.5 feet bgs from the monitoring well boring for W88-1. However, the PCE concentration of 8,700 µg/kg from 73 to 73.5 feet bgs and possibly the 10,000 µg/kg from 70 to 70.5 feet bgs are considered to be caused by drag-down during sampling, since the soils concentrations are not consistent with groundwater sample concentrations from the same depth interval (see Section 6.3). PCE was detected at 610 µg/kg from 48 to 49 feet bgs in a clayey silt sample from the DPT boring located at CPT-88-23. PCE concentrations in soil from the DPT boring at location CPT-88-23 were less than 480 µg/kg in soil samples collected above and below the 48- to 49-foot bgs sample. PCE was detected at 540 µg/kg in a sandy silt soil

# **LEGEND**

● CPT/PT LOCATION

— G — GEOLGIC CROSS SECTION LOCATION

— 1301 — BUILDING AND BUILDING NUMBER



BASE REALIGNMENT AND CLOSURE  
PROGRAM MANAGEMENT OFFICE WEST  
PROGRAM MANAGEMENT OFFICE WEST  
FORMER BUILDING 20 INVESTIGATION REPORT

FIGURE 3-3  
TIME CROSS SECTION  
CROSS SECTION LOCATION MAP  
FORMER NAS MOFFETT FIELD  
MOFFETT FIELD

REVISION 1  
AUTHOR: JDB  
DATE: 08/11/11  
FILE NUMBER: 000001-17-000











sample from 6 to 7 feet bgs, collected from the DPT boring located at CPT-88-19. PCE concentrations in soil from the DPT boring at location CPT-88-19 decreased with depth and was less than 480 µg/kg at a depth of 11.5 feet bgs in a silty clay. PCE concentrations remained less than 480 µg/kg to total depth.

PCE soil contamination in the traffic island area appears to be centered on the sewer, which was the discharge for wastewater from the Building 88's Sump 66. It appears that a leak occurred at or downstream from a 90° bend at the intersections of Wescoat Road, Cummins Avenue, and Cody Road. PCE contamination at the traffic island appears to have migrated vertically downward and laterally along the sewer trench to the north. PCE was not detected above laboratory reporting limits in soil gas samples from three consecutive soil gas probes, SG-88-44, SG-88-6, and SG-88-7, located along the sewer alignment to the south of the traffic island (see Section 2.3). The volume of PCE-contaminated soils at concentrations greater than 480 µg/kg in the traffic island area is calculated to be 12,400 cu yd. The estimated mass of PCE in the soil concentrations greater than 480 µg/kg in the traffic island area is calculated to be 32 pounds. PCE mass in soil was estimated by first calculating soil volume for each of the areas shown on Plates 9-5 and 9-6. The volume was multiplied by 0.7 to account for void space. The soil volume was then multiplied by the geometric mean of the PCE concentration contour intervals (the highest PCE concentration was used for the upper contour at the maximum interval).

## 9.2 CONTAMINANT FATE AND TRANSPORT (GROUNDWATER)

Depth to groundwater in the area of the Building 88 is currently about 5 feet. However, the depth to groundwater was likely less in past decades. As regional growth and development increased in the early part of the 1900s, so did extraction of groundwater. Over-production of groundwater lead to groundwater level declines, surface subsidence, and intrusion of saltwater into aquifers (Santa Clara Valley Water District, 1980). The maximum extent of these impacts may have occurred in the 1960s (Santa Clara Valley Water District, 1980). It is possible that much, if not all of the A aquifer may have been dewatered (dry) until the late 1960s. Production of groundwater decreased in the mid to late 1960s, as groundwater was replaced with water imported from the Hetch-Hetchy reservoir (Santa Clara Valley Water District, 1980). PCE-contaminated wastewater that leaked from Building 88 or the discharge sewer line in the traffic island area prior to the early 1970s, likely would have migrated through an unsaturated soil column through the A aquifer. This information is important, since contaminant fate and transport in unsaturated soils differs from that of a saturated aquifer. With the decrease in groundwater production from the lower aquifers in the mid to late 1960s, the water table began to rise.

PCE was detected in groundwater HydroPunch® samples at concentrations ranging from below the laboratory reporting limit of 0.5 µg/L to 15,000 µg/L (see Table 4-1). The solubility of PCE in water is listed as 150 milligrams per liter (mg/L) at 25° Centigrade (Verschuieren, 1983).

Concentrations of chlorinated solvents in groundwater at greater than 1 percent of their solubility limit are assumed to suggest the presence of a dense non-aqueous phase liquid (DNAPL) (EPA, 2004c). However, a separate non-aqueous phase is not typically detected in field samples at the 1 percent level. A separate non-aqueous phase may be detected in field samples as the concentration increases to greater than 10 percent of the solubility limit. For PCE, 1 percent of the solubility limit is a concentration of 1,500 µg/L in groundwater.

HydroPunch® groundwater samples were collected over a 2-foot or 3-foot interval at the Building 88 and traffic island area, and at select downgradient locations. Groundwater monitoring well samples were collected from monitoring well screens that are 2 to 15 feet long. HydroPunch® groundwater sample results from various locations were compared to sample result from groundwater monitoring wells as described below:

- HydroPunch® groundwater sample from CPT-88-5 compared to upper A aquifer monitoring well W9-46 and lower A aquifer monitoring well W9SC-15
- HydroPunch® groundwater sample from CPT-88-6 compared to upper A aquifer monitoring well WIC-1 and lower A aquifer monitoring well W9-20
- HydroPunch® groundwater sample from CPT-88-7 compared to upper A aquifer monitoring well W9-23
- HydroPunch® groundwater sample from CPT-88-8 compared to lower A aquifer monitoring well W9SC-3
- HydroPunch® groundwater sample from CPT-88-11 compared to upper A aquifer monitoring well W29-3

Monitoring well W9-46 is an upper A aquifer monitoring well, with a 10-foot-long screen completed over the interval of 17 to 27 feet bgs. The CPT lithologic log at location CPT-88-5 (about 40 feet to the west of W9-46) shows sandy soils from about 21 to 25 feet bgs (see Appendix E). The PCE concentration in a groundwater sample from W9-46, collected on April 27, 2005, was estimated at 150 µg/L. The PCE concentration in the HydroPunch® sample from location CPT-88-5 at a depth of 23 to 25 feet bgs was 0.55 µg/L.

Monitoring well W9SC-15 is a lower A aquifer monitoring well, with a 3-foot-long screen completed over the interval of 30 to 33 feet bgs. The CPT lithologic log at location CPT-88-5 (about 10 feet to the west of W9SC-15) shows clayey silts from about 30 to 37 feet bgs (see Appendix E). The PCE concentration in a groundwater sample from W9SC-15, collected on April 27, 2005, was estimated at 170 µg/L. Sufficient volume could not be collected for PCE sample analysis in the HydroPunch® sample from the boring at location CPT-88-5 between 30 to 33 feet bgs due to low apparent hydraulic conductivity.

Monitoring well WIC-1 is an upper A aquifer monitoring well, with a 5-foot-long screen completed over the interval of 18.7 to 23.7 feet bgs. The CPT lithologic log at location CPT-88-6 (about 35 feet to the north of WIC-1) shows sandy soils from about 20 to 23 feet bgs (see

Appendix E). The PCE concentration in a groundwater sample from WIC-1, collected on April 28, 2005, was 12 µg/L. The PCE concentration in the HydroPunch® sample from a boring at location CPT-88-6 at a depth of 20 to 23 feet bgs was 17 µg/L.

Monitoring well W9-20 is a lower A aquifer monitoring well, with a 15-foot-long screen completed over the interval of 30 to 45 feet bgs. The CPT lithologic log at location CPT-88-6 (about 50 feet to the southwest of W9-20) shows sandy soils from about 28 to 31 feet bgs and from 42 to 46 feet bgs (see Appendix E). The PCE concentration in a groundwater sample from W9-20, collected on April 28, 2005, was estimated at 530 µg/L. The PCE concentration in the HydroPunch® sample from a boring at location CPT-88-6 at a depth of 29 to 31 feet bgs was 27 µg/L and at a depth of 42 to 44 feet bgs was estimated at 120 µg/L.

Monitoring well W9-23 is an upper A aquifer monitoring well, with a 10-foot-long screen completed over the interval of 18 to 28 feet bgs. The CPT lithologic log at location CPT-88-7 (about 80 feet to the southeast of W9-23) shows sandy soils from about 23 to 25 feet bgs (see Appendix E). The PCE concentration in a groundwater sample from W9-23, collected on April 27, 2005, was 3.6 µg/L. The PCE concentration in the HydroPunch® sample from a boring at location CPT-88-7 at a depth of 23 to 25 feet bgs was 7.3 µg/L.

Monitoring well W9SC-3 is a lower A aquifer monitoring well, with a 3-foot-long screen completed over the interval of 31.5 to 34.5 feet bgs. The CPT lithologic log at location CPT-88-8 (about 45 feet to the southeast of W9SC-3) shows sandy silts from about 29 to 31 and from 32 to 34 feet bgs (see Appendix E). The PCE concentration in a groundwater sample from W9SC-3, collected on April 27, 2005, was 67 µg/L. The PCE concentration in the HydroPunch® sample from a boring at location CPT-88-8 at a depth of 32 to 34 feet bgs was 58 µg/L.

Monitoring well W29-3 is an upper A aquifer monitoring well, with a 10-foot-long screen completed over the interval of 10.5 to 20.5 feet bgs. The CPT lithologic log at location CPT-88-11 (about 15 feet to the west of W29-3) shows clayey silts from about 11 to 12 feet bgs, 16 to 17 feet bgs, and 18 to 21 feet bgs (see Appendix E). The PCE concentration in a groundwater sample from W29-3, collected on April 28, 2005, was 6.5 µg/L. The PCE concentration in the HydroPunch® sample from a boring at location CPT-88-11 at a depth of 10 to 13 feet bgs was 0.5 µg/L and from 18 to 20 feet bgs 7.1 µg/L.

In general, there appears to be a reasonable comparison of PCE concentrations between groundwater samples collected from groundwater monitoring wells and groundwater samples collected from a HydroPunch®. The groundwater sample data from two of the longer screened monitoring wells, W9-46 and W9-20, were not comparable with the HydroPunch® sample data. There is some indication that the longer the monitoring well screen, the less there was a correlation between the monitoring well and HydroPunch® groundwater samples, regardless of the hydrostratigraphy.

### 9.2.1 Building 88 Area

The distribution of PCE concentrations in groundwater with respect to depth bgs at the former Building 88 area is shown on Plates 9-7 and 9-8. In addition, the distribution of PCE concentrations in groundwater related to individual lithologic layers are shown in the geologic cross sections D-D' and E-E' (see Plate 9-1). The two cross sections are oriented approximately 20° to 30° from the northerly regional groundwater flow direction (see Figure 9-2). PCE concentrations in groundwater samples collected beneath the Building 88 area range from less than the laboratory reporting limit of 0.5 µg/L to a high estimated value of 2,100 µg/L at 56 to 59 feet bgs from the DPT boring at location CPT-88-15. In general, in the southern and western portion of the Building 88 footprint, PCE concentrations are less than 20 µg/L in groundwater samples collected from within permeable layers in the upper 30 feet bgs (upper portion of the A aquifer), and less than the EPA Region 9 drinking water Maximum Contaminant Level (MCL) of 5 µg/L in samples collected from below 30 feet bgs (lower portion of the A aquifer). This is consistent with the apparent de minimus soils contamination found in the southern and western portion of the Building 88 footprint (see Section 9.1.1).

In the eastern portion of the Building 88 footprint and in the area of Sump 66, PCE concentrations in groundwater samples are highest in the upper 15 feet (to a maximum of 1,100 µg/L at 12 to 14 feet bgs from the DPT boring at location CPT-88-1). The relative magnitude and location of the groundwater contamination to a depth of 20 feet bgs is consistent with the shallow soils contamination found in the eastern portion of Building 88 and in the area of Sump 66 (see Plate 9-2). An apparent increase in both PCE concentration and volume of impacted groundwater at 21 to 30 feet bgs may be due to lithology, as there are more permeable soils found at this depth interval.

The PCE contamination in the groundwater sample from monitoring well W9-46 (estimated at 150 µg/L, screened from 17 to 27 feet bgs) shown within the 16- to 20-foot bgs depth interval in Plate 9-7 does not appear to be related to Sump 66, due to the low PCE concentration in the groundwater sample from the adjacent monitoring well W9SC-14 (estimated at 5 µg/L, screened from 17 to 20 feet bgs). However, the PCE concentration in the groundwater sample from monitoring well W9-46 is likely due to the longer screen interval and the higher PCE concentrations at the 21- to 30-foot bgs depth interval (see Plate 9-7) originating from the Sump 66 area.

PCE concentrations in groundwater increase with depth to the north of the Building 88 area at depths greater than 30 feet bgs (lower portion of the A aquifer) to a maximum estimated value of 2,100 µg/L in a groundwater sample collected from 56 to 59 feet bgs from the DPT boring at location CPT-88-15 (see Plate 9-8). It appears that PCE-contaminated groundwater (possibly as DNAPL, since the concentration of PCE in the groundwater sample from the DPT boring at location CPT-88-15 at 56 to 59 feet bgs is greater than 1 percent of the solubility limit of PCE [see Section 9.2]) moved vertically downward to about the 20-foot bgs depth underlying the Building 88 footprint. At the 21- to 30-foot depth interval, the PCE-contaminated groundwater





moved advectively and/or down-dip to the north, if in DNAPL phase. PCE contamination then found a vertical pathway and moved to the investigated depth of 60 feet bgs. PCE-contaminated groundwater in the lower A aquifer appears to be moving generally downgradient by advection in the more permeable units. The apparent northwestern localized flow direction may be caused by a combination of lithology (channelization) and pumping of the lower A aquifer. Due to the nature and extent of PCE contamination in groundwater, the amount of PCE is assessed for the overall upper and lower portions of the A aquifer and not for the individual source areas described in Section 9.2.3.

In general, it appears that PCE concentrations in the fine-grained soil samples collected at depths above 20 to 35 bgs are higher than groundwater concentrations. The soil-water partitioning coefficient for PCE is listed as 155 milliliters per gram by the EPA (1996), which is not a high value (PCE prefers to stay in the liquid phase). However, the total organic carbon (TOC) for much of the fine-grained soils above 20 to 35 feet bgs is relatively high, allowing for greater sorption. The coarser-grained soil contained much less TOC than the fine-grained soil, and thus, appeared to have sorbed lower concentrations of PCE. Soil samples from the coarser-grained layers in the upper 35 feet bgs generally had lower PCE concentrations in soils than the groundwater samples collected from those same layers. Below depths of about 35 feet bgs, the soil samples contain less TOC, and the PCE concentrations in soil samples were less than the groundwater sample concentrations. This interpretation is consistent with the findings presented in Section 9.1.1.

In order to evaluate environmental response actions, it is necessary to determine if subsurface PCE concentrations are primarily found in the water (sorbing to the soils), bound to the soils (desorbing to the water), or in equilibrium between water and soils. This evaluation is made by comparing the measured soil PCE concentration, the theoretical sorbed PCE concentration, and the PCE groundwater concentration. The theoretical sorbed concentrations of PCE to soil are based on the PCE groundwater concentration and the TOC concentration, calculated using the following equations:

$$\text{Sorbed PCE soil concentration} = K_d \times C_{gw}$$

Where,

$C_{gw}$  = groundwater PCE concentration

$K_d$  = distribution coefficient =  $K_{oc} \times f_{oc}$

Where,

$K_{oc}$  = organic carbon-water partitioning coefficient

$f_{oc}$  = fraction organic carbon

The analysis uses averaged values over the upper or lower portion of the A aquifer at the following Building 88 locations. The results of the analysis are provided in Table 9-1.

- CPT-88-1      Building 88, adjacent to Sump 66
- CPT-88-2      Building 88, within Sump 91



- CPT-88-3 Building 88, northern excavation area
- CPT-88-15 North of Building 88

PCE-contaminated soils are primarily desorbing to groundwater in the upper portion of the A aquifer in the Sump 66 and the northern excavation areas. PCE concentrations are generally in equilibrium between the soil and groundwater in the upper portion of the A aquifer in the area of Sump 91 and to the north of Sump 66.

Dissolved PCE-contaminated groundwater is sorbing to the soils in the lower portion of the A aquifer in the Sump 66 and to the north of Sump 66 areas. PCE concentrations are generally in equilibrium between the soil and groundwater in the lower portion of the A aquifer in the Sump 91 and to the northern excavation.

### 9.2.2 Traffic Island Area

The distribution of PCE concentrations in groundwater with respect to depth bgs at the traffic island area is shown on Plates 9-9 and 9-10. In addition, the distribution of PCE concentrations in groundwater related to individual lithologic layers are shown in the geologic cross sections F-F' and G-G' (see Plate 9-4). Cross section F-F' is oriented north-south, looking toward the east, generally along the regional groundwater flow direction. Cross section G-G' is oriented west-east, looking toward the north, generally orthogonal to the regional groundwater flow direction. Concentrations of PCE in groundwater samples collected from beneath the traffic island area ranged from 2,000 µg/L at 57 to 60 feet bgs to 15,000 µg/L at 17 to 19 feet bgs from the DPT boring at location CPT-88-13. The PCE concentration in a groundwater sample collected in December 2005, from monitoring well W88-1, screened at a depth of 72 to 82 feet bgs directly beneath the DPT boring at location CPT-88-13, was 6 µg/L (see Section 6.3). This concentration is not consistent with the PCE soils concentration of 8,700 µg/kg from the sample collected in the screen interval at 73 to 73.5 feet bgs. The relatively high PCE concentrations detected in this soil sample is considered to have been caused by drag-down during sampling (See Sections 6.3 and 9.1.2).

PCE concentrations in groundwater samples collected south (hydraulically upgradient) of the traffic island (from DPT borings at locations CPT-88-16 and CPT-88-17, and from monitoring well WNX-2) were less than the PCE MCL of 5 µg/L. PCE concentrations in groundwater appear to decrease to the north, with concentrations of PCE in groundwater samples collected from the DPT boring at location CPT-88-19 (the closest downgradient location, about 200 feet to the north) detected above the MCL at 6 to 9 feet bgs (estimated at 830 µg/L), at 27 to 30 feet bgs (9.5 µg/L), and at 47 to 50 feet bgs (estimated at 130 µg/L).

The apparent elongated shape of the groundwater contamination to a depth of 15 feet bgs is likely controlled by the utility corridor underlying Cummins Avenue and Wescoat Road (see Plate 9-9). The apparent increase in PCE concentration and decrease in apparent volume of impacted groundwater at the 16- to 20-foot bgs interval may be due to encountering native fine-

# FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 9-1

## EVALUATION OF SUBSURFACE EQUILIBRIUM CONDITIONS

Upper A Aquifer					
	Average PCE Soils Concentration (µg/kg)	Average TOC (mg/kg)	Average Groundwater PCE Concentration (µg/L)	Calculated Sorbed PCE Concentration (µg/kg)	Interpretation of Equilibrium Condition
CPT-88-1	1023	2560	573	418	Soil desorbing to groundwater
CPT-88-2	2	3225	2	1.3	Equilibrium condition
CPT-88-3	890	5038	161	277	Soil desorbing to groundwater
CPT-88-15	18	4007	20	19	Equilibrium condition
CPT-88-13	3020	1013J	8733	1620	Water sorbing to soils <sup>a</sup>
CPT-88-23	68	2236	814	267	Water sorbing to soils

Lower A Aquifer					
	Average PCE Soils Concentration (µg/kg)	Average TOC (mg/kg)	Average Groundwater PCE Concentration (µg/L)	Calculated Sorbed PCE Concentration (µg/kg)	Percent Difference between Average PCE Soil Concentration and Calculated Sorbed Concentration
CPT-88-1	10	1061J	61	21	Water sorbing to soils
CPT-88-2	1	1083J	1	0.4	Equilibrium condition
CPT-88-3	3	3220	3	2	Equilibrium condition
CPT-88-15	104	1110U	1134	365	Water sorbing to soils
CPT-88-13	3550	1000U	3250	431	Water sorbing to soils <sup>a</sup>
CPT-88-23	308	1535U	1300	243	Water sorbing to soils

### Notes:

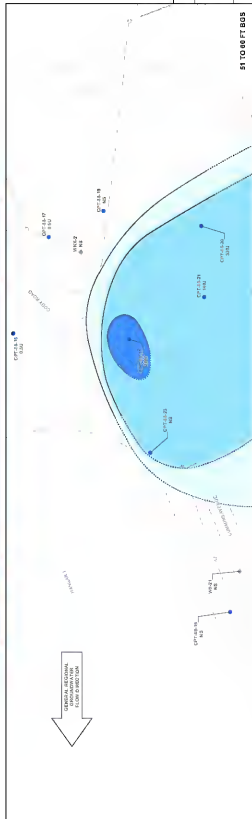
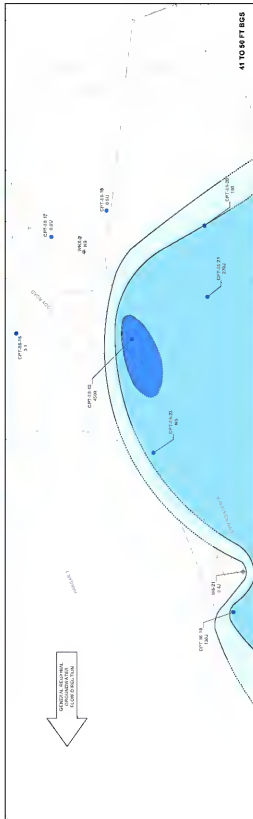
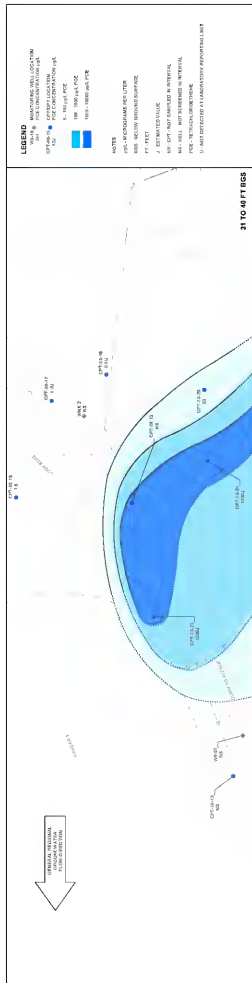
<sup>a</sup> - apparent condition may be caused by residual high groundwater PCE concentrations in the fine-grained soil during laboratory analysis and/or the presence of DNAPL

### Abbreviations and Acronyms:

J - estimated concentration  
 µg/kg - micrograms per kilogram  
 µg/L - micrograms per liter  
 mg/kg - milligrams per kilogram  
 PCE - tetrachloroethene  
 TOC - total organic carbon  
 U - not detected at the laboratory method limit

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### BASE REALIGNMENT AND CLOSURE

### BASE REALIGNMENT AND CLOSURE

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PLATE 910

TRAFFIC ISLAND AREA GROUNDWATER PCE  
1500 CONCENTRATIONS 31 - 83 FEET BGS

FORMER NAS MOFFETT FIELD  
MOFFETT FIELD, CA

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grained soils restricting the movement of PCE contamination. Below a depth of 30 feet bgs, PCE contaminant migration appears to be controlled by the more permeable layers of soil. It appears that PCE contamination moved vertically down to a depth of about 70 feet bgs below the traffic island and did not fully penetrate a clay layer at this depth. Based on the PCE concentrations measured in this investigation, the vertical movement of contamination in the traffic island was likely a combination of DNAPL and dissolved phase. DNAPL is likely still present and can be detected in field samples in the depth interval of 6 to 20 feet bgs in the area of location CPT-88-13, based on PCE concentrations detected at or near 10 percent of its solubility limit (see Section 9.2). DNAPL was likely a driving force for the vertical migration of PCE to about 70 feet bgs in the area of CPT-88-13, as reported concentrations are greater than 1 percent of the solubility limit to that depth.

The assessment of potential environmental response actions (determining if subsurface PCE concentrations are primarily found in the water [sorbing to the soils], bound to the soils [desorbing to the water], or in equilibrium between water and soils) was evaluated as described in Section 9.2.1. The analysis uses averaged values over the upper or lower portion of the A aquifer at the following traffic island source area locations. The results of the analysis are provided in Table 9-1.

- CPT-88-13      Traffic island
- CPT-88-23      North of traffic island

Dissolved PCE-contaminated groundwater is sorbing to the soils in the upper portion of the A aquifer to the north of the traffic island. Dissolved PCE-contaminated groundwater appears to be sorbing to the soils in the upper portion of the A aquifer in the traffic island however, the average PCE soils concentration is about a factor of two greater than the calculated sorbed concentration due to low TOC concentrations. This apparent condition may be caused by residual high groundwater PCE concentrations in the fine-grained soil during laboratory analysis and/or the presence of DNAPL.

Dissolved PCE-contaminated groundwater is sorbing to the soils in the lower portion of the A aquifer to the north of the traffic island. Dissolved PCE-contaminated groundwater appears to be sorbing to the soils in the lower portion of the A aquifer in the traffic island however, the average PCE soils concentration is about an order of magnitude greater than the calculated sorbed concentration due to low TOC concentrations. This apparent condition may be caused by residual high groundwater PCE concentrations in the fine-grained soil during laboratory analysis and/or the presence of DNAPL.

### 9.2.3 Downgradient PCE Plume

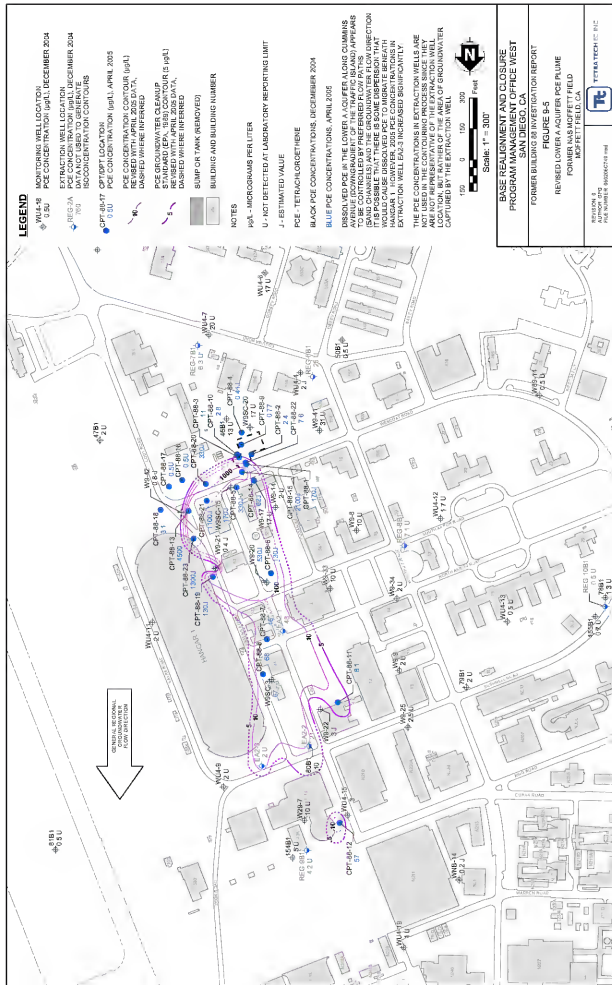
Compositing the subsurface utility information, the coarse-grained soil distributions, the DPT groundwater sample data, and the groundwater monitoring well data provides a different depiction of the downgradient PCE plumes (upper A aquifer [Figure 9-4] and lower A aquifer

[Figure 9-5] plumes) than interpreted using only the December 2004 groundwater monitoring data (see Section 1.2.7). The source area for both the upper and lower A aquifer PCE plumes appears to be related to the northern and eastern portion of the Building 88 area, the Sump 66 discharge sewer along Wescoat Road, and at the traffic island along Cummins Avenue. There are two PCE plume lobes within the upper portion of the A aquifer. The lobe to the east is a narrow linear feature along Cummins Avenue. The eastern lobe, found in the shallowest portions of the upper A aquifer, is interpreted to be controlled by the backfill of the utilities along Cummins Avenue. The eastern PCE lobe is mostly defined by the DPT HydroPunch<sup>®</sup> data. It is possible that there is some dispersion that would cause dissolved PCE to migrate beneath Hangar 1. However, based on the limited dispersion on the west side of Cummins Avenue, PCE concentrations were not projected beneath Hangar 1 in the upper A aquifer. The eastern lobe is about 1,000 feet long and generally less than 50 feet wide. The western boundary of the eastern lobe is explicitly defined by groundwater monitoring wells W9-45 and W9SC-1, and implicitly defined by the physical environment (subsurface utilities along Cummins Avenue). The eastern boundary of the eastern lobe is explicitly defined by the DPT samples from location CPT-88-18 and groundwater monitoring well WWR-1 and is implicitly defined by the physical environment. The concentrations of PCE in the eastern lobe of the upper A aquifer decrease to the north, away from the traffic island source area. The highest concentration of PCE within the eastern lobe, downgradient of the traffic island source area, was reported at an estimated concentration of 830 µg/L in a groundwater sample from the DPT boring at location CPT-88-19 collected at a depth of 6 to 9 feet bgs. CPT-88-19 is located approximately 200 feet north of the traffic island.

The western PCE lobe within the upper portion of the A aquifer does not differ from the depiction developed using solely groundwater monitoring well data (see Section 1.2.7). The PCE groundwater plume, as detected in the upper portion of the A aquifer groundwater monitoring wells, is approximately 2,000 feet long and from 150 to 250 feet wide. The plume has an elongated shape in a north-south direction, is interpreted to be due to the channelization characteristics of coarse-grained soil (see Section 8.3), and appears to be influenced by extraction well pumping from the upper A aquifer. Groundwater samples from monitoring wells W9-10, 14D12A, 14B27A, and 14D30A are used in delineating the northern (downgradient) edge of the western lobe. The southern edge of the western lobe is not delineated and may have a contribution from upgradient sources. The eastern edge of the western lobe is delineated by groundwater samples from monitoring wells W9SC-7, W9-23, and UST85-MW02. The western edge of the PCE plume is delineated by groundwater samples from monitoring wells W9-6 and W29-4. The highest concentration of PCE within the western lobe, downgradient from the former Building 88 source area, was reported at an estimated concentration of 150 µg/L in a groundwater sample from monitoring well W9-46 collected in April 2005, which is approximately 100 feet northeast of the former Building 88.







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REVISED LOWER AQUIFER  
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The total amount of PCE in the upper portion of the A aquifer, including the eastern and western lobes, is calculated to be 48 pounds. PCE mass in groundwater was calculated by multiplying the surface area for the revised upper A aquifer PCE plume on Figure 9-5 by the estimated aquifer thickness of 23 feet. The resulting volume was multiplied by 0.3 to account for the solid fraction. The water volume was then multiplied by the geometric mean of the PCE concentration contour intervals (the highest PCE concentration was used for the upper contour at the maximum interval).

The PCE plume within the lower portion of the A aquifer is wider than depicted using solely groundwater data from monitoring wells. Dissolved PCE in the lower A aquifer along Cummins Avenue (downgradient of the traffic island) appears to be controlled by preferred flow paths (sand channels) and the groundwater flow direction. It is possible that there is some dispersion that would cause dissolved PCE to migrate beneath Hangar 1. However, since extraction well EA2-3 only contains low PCE concentrations, it is not likely that there is significant dispersion beneath Hangar 1. The PCE groundwater plume, as detected in lower A aquifer groundwater monitoring wells, is approximately 1,600 feet long and varies from 250 to 500 feet wide. The plume is located immediately west of Hangar 1 (Figure 9-6). The northern edge of the PCE plume appears to be lobate, as suggested using the DPT groundwater sample at location CPT-88-11 collected at a depth of 31 to 33 feet bgs and the 2005 groundwater sample collected from the WATS extraction well EA2-3 (29  $\mu\text{g/L}$  of PCE). However, it is possible that the groundwater sample from the DPT boring at location CPT-88-11 collected at the depth of 31 to 33 feet is representative of the upper portion of the A aquifer. The northern edge of the PCE plume is delineated by groundwater samples from monitoring wells WU4-15, W29-7, and W9-22. The southern edge of the PCE plume is well-delineated in the area of the traffic island (groundwater samples from DPT locations CPT-88-16, CPT-88-17, and CPT-88-18), but not well-delineated in Building 88 (due to elevated detection levels of groundwater samples from monitoring wells to the south of the PCE plume). The southern edge of the PCE plume in the lower A aquifer appears to be in Building 88 area. The eastern edge of the PCE plume is partially delineated by groundwater samples from monitoring wells W9-21 and W9-42. The western boundary of the PCE plume is partially delineated by groundwater samples from monitoring wells W9-33 and W9-14. The highest concentration of PCE within the lower portion of the A aquifer, downgradient of the Building 88 or traffic island areas, was in a groundwater sample from monitoring well W9-20 at an estimated concentration of 530  $\mu\text{g/L}$  collected in April 2005 (assuming that location CPT-88-23 is within the traffic island source area). The amount of PCE in the lower portion of the A aquifer is calculated to be 70 pounds. PCE mass in groundwater was calculated by multiplying the surface area for the revised lower A aquifer PCE plume on Figure 9-6 by the estimated aquifer thickness of 30 feet. The resulting volume was multiplied by 0.3 to account for the solid fraction. The water volume was then multiplied by the geometric mean of the PCE concentration contour intervals (the highest PCE concentration was used for the upper contour at the maximum interval).

Horizontal migration of PCE-contaminated groundwater from Building 88 and traffic island areas appear to be limited in the upper 30 feet by the lack of continuous sand channels (see Section 8.3). Although shallow (less than 30 feet bgs) PCE concentrations are high within permeable lenses in the Building 88 and traffic island areas, the downgradient concentrations in the upper portion of the A aquifer are significantly lower (see Figure 9-7 and Plate 9-9). It is likely that the lower PCE concentrations in the upper A aquifer downgradient of the source areas are a function of sorption, dispersion (macro-scale caused by the lack of continuity of sand channels, and micro-scale caused by advective groundwater flow), and dilution.

Horizontal migration of PCE-contaminated groundwater from the Building 88 and the traffic island areas appears to be prevalent below 30 feet due to the north-south continuity of sandy soils in the 40- to 46-foot interval and 45- to 52-foot interval of the lower A aquifer (see Section 8.3) influenced by extraction well pumping in the lower A aquifer. Although PCE concentrations at depths greater than about 35 feet bgs are relatively high within lenses in the Building 88 and traffic island areas, the downgradient PCE concentrations in the lower portion of the A aquifer are significantly lower (see Figure 9-8 and Plate 9-10). It is likely that the lower PCE concentrations in the lower A aquifer downgradient of the source areas are a function of sorption, dispersion, and dilution.

Groundwater samples collected from four B2 aquifer zone monitoring wells (51B2 and W9-11 in April 2005, and W88-1 and W88-2 in August 2005) contained PCE at concentrations at 69 µg/L, an estimated 0.17 µg/L, an estimated 0.31 µg/L, and an estimated 0.17 µg/L, respectively. Groundwater samples collected from three other B2 aquifer zone wells (W9-12 and W9-15 in April 2005, and W88-3 in August 2005) did not contain PCE at concentrations greater than the laboratory reporting limit. A groundwater sample collected from B2 aquifer zone monitoring well W88-1 in December 2005 contained PCE at a concentration of 6 µg/L. Groundwater samples collected from four other B2 aquifer zone wells in December 2005 (W9-12, W9-15, W88-2, and W88-3) did not contain PCE at concentrations greater than the laboratory reporting limit. The August 2005 groundwater sample collected from W88-1 was obtained shortly after well construction. The PCE concentration in the groundwater sample collected from W88-1 in August 2005 appears to be impacted by drag-down during well construction. There appears to be de minimus PCE impacting the B2 aquifer.

# **LEGEND**

- UPPER A MONITORING WELL LOCATION
- LOWER A MONITORING WELL LOCATION
- B2 MONITORING WELL LOCATION
- CP1 LOCATION
- CORRIGEND CORE LOCATION
- GEOLOGIC CROSS SECTION LOCATION
- BUILDING AND BUILDING NUMBER

- WB-6
- WB-20
- WB-15
- WB-10
- CP1-6B-22
- CP1-6B-2
- CC-6B-2
- B'
- B'
- 1326



## 10.0 TREATABILITY STUDIES

Soil and groundwater samples were collected to conduct chemical oxidation treatment tests and to evaluate the presence of microorganisms. Chemical oxidation tests, biomarker analysis, and substrate screening objectives, methodologies, and results are described in the following sections.

### 10.1 TREATABILITY STUDY OBJECTIVES

Chemical oxidation tests, biomarker analysis, and substrate screening objectives are described in the following sections.

#### 10.1.1 Chemical Oxidation

The chemical oxidation laboratory treatability study objective was to determine the site-specific stoichiometry and amendments required for chemical treatment of site contaminants, and to determine the number of applications (if applicable) and associated reduction in soil and groundwater tetrachloroethene (PCE) contaminant concentrations.

#### 10.1.2 Biomarker Analysis

The biomarker analysis objective was to provide preliminary information relevant to the potential for biodegradation of chlorinated volatile organic compounds (VOCs), through in situ bioremediation. Specific objectives were as follows:

- Provide an assessment of the total viable biomass in the subsurface.
- Assess populations of *Dehalococcoides* spp. and functional genes coding for enzymes involved in reductive dechlorination.
- Generate information regarding microbial community structure and physiological status as baseline data to assess potential future shifts in community dynamics due to treatment or other considerations.

Sampling for biomarkers was limited to two locations, and the data are intended to provide a preliminary, scoping-level assessment of the potential for in situ bioremediation as a remedial approach at this site.

#### 10.1.3 Substrate Screening

The objective of the biotrap installation was to provide initial comparison of several carbon substrates to stimulate the indigenous microbial community, including sodium lactate, molasses, Hydrogen Release Compound (HRC<sup>®</sup> - a proprietary slow-release lactate compound), a proprietary substrate consisting of plant material and zero-valent iron (EHC<sup>™</sup>), and Edible Oil

Substrate (a proprietary vegetable oil formulation). Analysis of preliminary substrate screening provided information regarding preferred substrate(s) on a site-specific basis, which can be used in evaluating enhanced in situ bioremediation as a remedial technique.

## **10.2 CHEMICAL OXIDATION**

A chemical oxidation treatability study was performed by In-Situ Oxidative Technologies, Inc. (ISOTEC), West Windsor, New Jersey. Appendix H includes a copy of the laboratory treatability study report. A summary of the treatability study and results are presented below.

Soil and groundwater samples collected from continuous core boring CC-88-3 and the direct push technology (DPT) boring at location CPT-88-3 were used for bench-scale testing of the modified Fenton's process. Portions of groundwater and soil samples were prepared into a slurry (a mixture of composited site soil and groundwater by combining 2 parts soil to 1 part groundwater [by weight]) for use during the study. Experiments were performed independently on the groundwater and on the slurry samples.

The selected modified Fenton's reagent contained an oxidant and a proprietary catalyst. The oxidant used in the reagent was hydrogen peroxide, and the catalyst was ISOTEC's patented Catalyst 4260 (Cat-4260). Cat-4260 is a circum neutral pH organometallic complex with high mobility within the subsurface. An experimental control sample was set up during each experiment described below to document the changes in the target constituents.

### **10.2.1 Methodology – Groundwater**

A groundwater test experiment was performed in four identical 140-milliliter (mL) VOC-tight glass reactors. One of the four reactors served as a control reactor, while the remaining three treatment reactors received low-, medium-, and high-reagent dosages. The predetermined amount of modified Fenton's reagent was injected into each treatment reactor at small, incremental dosages. The treatment reactors received one, two, or three dosages to represent low-, medium-, and high-treatment conditions. Each dosage provided an equivalent hydrogen peroxide concentration of 0.4 percent, and catalyst concentration of 1.4 millimoles (mM) in the groundwater being treated. The multiple dosage approach (incremental approach) was used during the test to increase treatment efficiency, minimize gas formation and the resulting pressure buildup. Approximately 24 hours were maintained between dosages. All reactors (control and treatment) were left undisturbed for a minimum of 24 hours or until all the peroxide was consumed before analytical sample collection. The control sample was set up the same way, remained at, and was subject to the same conditions as the treatment reactor.

### **10.2.2 Methodology – Slurry**

The soil and groundwater slurry (slurry) test experiment was performed in four identical 40-mL VOC-tight glass reactors. One of the four reactors served as the control reactor, while the

remaining three served as treatment reactors. The slurry in each reactor was a 2:1 mixture (12 grams [g] of soil and 6 g of groundwater). A predetermined amount of modified Fenton's reagent was injected into each treatment reactor at incremental dosages. The treatment reactors received one, two, or three dosages to represent low-, medium-, and high-treatment conditions. Each dosage provided an equivalent hydrogen peroxide concentration of 1.9 percent and catalyst concentration of 6.9 mM in the supernatant of the slurry being treated. Upon completion of the experiment, the control and treatment reactors were preserved with methanol and submitted for VOC analysis.

### 10.2.3 Initial Concentrations

Three VOC compounds were detected at a cumulative VOC concentration of 4,380 micrograms per liter ( $\mu\text{g/L}$ ) (pre-treatment groundwater sample) and 7,219 micrograms per kilogram ( $\mu\text{g/kg}$ ) (pre-treatment slurry). Concentrations of individual compounds were as follows:

- Pre-treatment groundwater – PCE at 263  $\mu\text{g/L}$ 
  - trichloroethene (TCE) at 967  $\mu\text{g/L}$
  - cis-1,2-dichloroethene (cis-1,2-DCE) at 3,150  $\mu\text{g/L}$
- Pre-treatment slurry – PCE at 579  $\mu\text{g/kg}$ 
  - TCE at 4,060  $\mu\text{g/kg}$
  - cis-1,2-DCE at 2,580  $\mu\text{g/kg}$

Total organic carbon was present in site soil at a concentration of 930 milligrams per kilograms ( $\text{mg/kg}$ ). It was anticipated that a relatively low reagent dose would be sufficient for effective treatment, as there is little competition for oxidant from the organic materials present in site soils.

Iron and manganese present in site soils could decompose hydrogen peroxide. Iron in soil was detected at 28,700  $\text{mg/kg}$ , and manganese was detected at 330  $\text{mg/kg}$ . Iron in its dissolved phase in groundwater is known to be a catalyst to promote Fenton-type reactions. Dissolved iron was not detected at a reporting limit of 100  $\mu\text{g/L}$ . Manganese was detected at 281  $\mu\text{g/L}$ . Dissolved iron and manganese concentrations are too low to function as effective, naturally occurring catalysts for the Fenton-type reactions.

### 10.2.4 Chemical Oxidation Results – Groundwater

Chemical oxidation (Fenton's reagent) study results for groundwater are summarized in Table 10-1. A 99.7 percent VOC concentration reduction was noted after the lowest treatment condition (one dose). The PCE concentration decreased to below the laboratory reporting level

after two doses. TCE and cis-1,2-DCE concentrations were reduced to below the laboratory reporting level after one treatment dose.

1,1-Dichloroethane (1,1-DCA) persisted after three treatment dosages because of its slower reactivity with free radicals compared to TCE. The absence of double bonds in this compound makes it less vulnerable to free radical attack, resulting in 2-3 orders of magnitude lower hydroxyl radical reactivity. Nonetheless, up to an 87 percent reduction of 1,1-DCA was achieved after three dosages (see Table 10-1). Gradually decreasing 1,1-DCA concentrations with increasing treatment dosages indicates that this compound eventually will be destroyed, although at a slower rate compared to TCE, cis-1,2-DCE, or PCE.

### **10.2.5 Chemical Oxidation Results – Slurry**

Chemical oxidation (Fenton's reagent) study results for the slurry summarized in Table 10-2 indicate a 72 percent VOC concentration reduction after one reagent dose, and an 81 percent VOC concentration reduction after three reagent doses. Concentration reductions for PCE, cis-1,2-DCE, and TCE were 61 percent, 95 percent, and 65 percent, respectively, following three reagent dosages. The persistence of PCE, cis-1,2-DCE, and TCE and a slight rebound of PCE and TCE concentrations were a result of the sample heterogeneity, despite the sample compositing prior to conducting the study. Based on observed decreasing concentration trends, additional doses of reagent would likely treat the PCE, TCE, and cis-1,2-DCE to non-detect levels.

## **10.3 BIOMARKER ANALYSIS**

Biochemistry-based diagnostic assays were used to assess specific microorganisms and groups of microorganisms in soil and water samples. Since certain types of organisms are responsible for specific metabolic reactions, information gained from these assays provides a description of the conditions and processes affecting biodegradation of site contaminants on a site-specific basis.

### **10.3.1 Methodology**

Four samples, two groundwater samples and two soil samples, were collected from DPT borings at locations CPT-88-3 and CPT-88-19 (see Section 4.2) and were sent to Microbial Insights, Inc., for microbial biomarkers analysis.

The following microbial biomarker analyses were performed on each sample:

- Enumeration of *Dehalococcoides* spp., vinyl chloride (VC) reductase, and TCE reductase via quantitative polymerase chain reaction
- Phospholipid fatty acids via gas chromatography-flame ionization detection/mass spectrometry



# FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 10-I

## GROUNDWATER TREATABILITY STUDY RESULTS FORMER NAS MOFFETT FIELD MOFFETT FIELD, CA

Sample ID Catalyst Used Oxidant Used Number of Doses of Treatment	GW/Control None None 0	GW/T-A Cat-4260 H <sub>2</sub> O <sub>2</sub> 1	GW/T-B Cat-4260 H <sub>2</sub> O <sub>2</sub> 2	GW/T-C Cat-4260 H <sub>2</sub> O <sub>2</sub> 3
<b>VOCs (µg/L)</b>				
1,1-Dichloroethene	55.4	U<0.36	U<0.36	U<0.36
1,1-Dichloroethane	24.9	11.4	6.48	3.34
cis-1,2-Dichloroethene	2,990	U<0.30	U<0.30	U<0.30
Trichloroethene	679	U<0.35	U<0.35	U<0.35
Tetrachloroethene	175	0.854	U<0.45	U<0.45
TOTAL VOCs	3,924.3	12.254	6.48	3.34
TOTAL TICs	U	12.6	41	62.4
<b>% Reduction</b>				
Total VOCs	--	99.7%	99.8%	99.9%
Total TICs	--	--	--	--
Final pH Value	6.51	6.56	6.53	6.49

### Notes:

The above list includes the compounds that were detected in at least one sample in the treatability study. The entire list of 37 target compounds analyzed, plus TICs, along with chain-of-custody were provided in Appendix H. All "% reduction" are relative to the "control" sample with assumption of "U" values equal to zero  
Bold – Indicates value above method detection limit for VOC analysis only

### Abbreviations and Acronyms:

µg/L – micrograms per liter  
CA – California  
Cat-4260 – Catalyst 4260  
GW – groundwater  
H<sub>2</sub>O<sub>2</sub> – hydrogen peroxide  
-- – not analyzed (for pH value), or not calculated (for % reduction)  
MDL – method detection limit  
NAS – Naval Air Station  
TIC – tentatively identified compound  
U – not detected at or above the laboratory reporting limit (value indicates the reporting limit)  
VOC – volatile organic compound

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# FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 10-2

## SLURRY TREATABILITY STUDY RESULTS FORMER NAS MOFFETT FIELD MOFFETT FIELD, CA

Sample ID Catalyst Used Oxidant Used Number of Doses of Treatment	SL/Control None None 0	SL/T-A Cat-4260 H <sub>2</sub> O <sub>2</sub> 1	SL/T-B Cat-4260 H <sub>2</sub> O <sub>2</sub> 2	SL/T-C Cat-4260 H <sub>2</sub> O <sub>2</sub> 3
<b>VOCs (µg/kg)</b>				
1,1-Dichloroethene	U<5.95	U<5.95	U<5.95	U<5.95
1,1-Dichloroethane	U<5.95	U<5.95	U<5.95	U<5.95
cis-1,2-Dichloroethene	922	116	56	49
Trichloroethene	637	298	200	226
Tetrachloroethene	109	47	36	42
<b>TOTAL VOCs</b>	<b>1,668</b>	<b>461</b>	<b>292</b>	<b>317</b>
<b>TOTAL TICs</b>	<b>U</b>	<b>U</b>	<b>U</b>	<b>U</b>
<b>% Reduction</b>				
Total VOCs	--	72.4%	82.5%	81.0%
Total TICs	--	--	--	--
Final pH Value	6.99	6.74	6.87	7.32

### Notes:

The above list includes the compounds that were detected in at least one sample in the treatability.

The entire list of 37 target compounds analyzed, plus TICs, along with chain-of-custody were provided in Appendix H.

All “% reduction” are relative to the “control” sample with assumption of “U” values equal to zero.

Bold - Indicates value above method detection limit for VOC analysis only

### Abbreviations and Acronyms:

µg/kg – micrograms per kilogram

CA – California

Cat-4260 – Catalyst 4260

H<sub>2</sub>O<sub>2</sub> – hydrogen peroxide

-- – not analyzed (for pH value), or not calculated (for % reduction)

MDL – method detection limit

NAS – Naval Air Station

TIC – tentatively identified compound

U – not detected at or above the laboratory reporting limit (value indicates the reporting limit)

VOC – volatile organic compound

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Groundwater and soil sample PCE, TCE, cis-1,2-DCE, and VC concentrations in the microbial biomarkers samples are presented in Table 10-3.

### 10.3.2 Results

The contaminant data for each sample are consistent – cis-1,2-DCE was generally detected in variable, but relatively large concentrations, and VC was detected at very low concentrations, consistent with the West-Side Aquifers Treatment System (WATS) site data (Tetra Tech FW, Inc. [TtFW], 2005a). The presence of significant amounts of cis-1,2-DCE and trace amounts of VC suggests that reductive dechlorination of PCE and TCE, and to a limited extent cis-1,2-DCE, is occurring. This suggests that the presence of a carbon source and reducing conditions in the range appropriate for reductive dechlorination are present. However, reduction of cis-1,2-DCE appears to be minimal, and thus the characteristic and/or concentrations of naturally occurring organic carbon may be insufficient. It is also possible that appropriate microorganisms/metabolic capabilities required to bring about complete dechlorination to ethene may be limiting. The results of the biomarker analyses are described in this context below.

#### 10.3.2.1 Phospholipid Fatty Acid Analysis

Phospholipid fatty acids analysis provides several levels of information regarding the intact microbial community, including total viable biomass, physiological status, and community structure. Results for total viable biomass and physiological status markers are presented in Table 10-4, and community profiles are included with the laboratory report in Appendix I.

**Enumeration of Viable Biomass:** Total viable biomass is on the order of  $10^4$  to  $10^6$  cells/mL or g. These levels can be considered moderate and do not suggest any major deficiencies with respect to general microbial presence.

**Physiological Status Markers:** Physiological status markers provide indication of the general “health” of representative members of the microbial community with respect to their surroundings. These values represent the ratio of particular phospholipid fatty acids that are produced in response to less favorable conditions (such as nutritional deficiency or toxic stress) to phospholipid fatty acids that are produced in response to more favorable conditions (for example balanced growth). Thus, higher indices represent a greater degree of stress within the community. The results presented here suggest that there may be significant physiological stress within the microbial community. However, physiological stress markers from one sampling event are generally most useful when compared with results from subsequent events, following an induced change in subsurface conditions, such as substrate enhancement.

**Community Profiling:** Community profiles are presented in Appendix I. The profiles reflect various phospholipid fatty acids that are indicative of broad classes of microbes, which are present within the community in varying amounts, dependent upon sub-surface conditions. As

with the physiological status markers, community profile data are most appropriately used to document community evolution based on changing conditions within the subsurface. However, the current samples contained a reasonably diverse community structure, including anaerobic and aerobic bacteria that thrive under a wide variety of conditions. In addition, phospholipid fatty acids indicate the presence of *Firmicutes*, a classification of bacteria that includes several anaerobic fermentors, which produce hydrogen gas that serves as the energy source for reductive dechlorinators. *Firmicutes* are indicative of fermenting organisms (mainly clostridia and bacteriodes-like organisms), which fall within this Phylum, and are thus a reasonable indicator of the process. This appears to represent a reasonably healthy, diverse community.

#### 10.3.2.2 Quantitative Polymerase Chain Reaction

The results from the quantitative polymerase chain reaction analysis are presented in Table 10-5.

***Dehalococcoides* spp:** *Dehalococcoides* spp. deoxyribonucleic acid sequences were detected in all four samples from the DPT at location CPT-88-3 and in one of the samples from the DPT at location CPT-88-19. This demonstrates the presence of *Dehalococcoides* spp. at this site and suggests variation in distribution. With respect to cell concentrations, *Dehalococcoides* spp. was detected in the range of  $10^3$  to  $10^4$  cells/mL in three of the four samples from the DPT samples from location CPT-88-3 (soil and groundwater). Levels in the range of  $10^3$  to  $10^4$  cells/mL are considered relatively high for a site that has not been amended with a carbon substrate. For reference, total bacterial cell counts of  $10^3$  to  $10^4$  cells/mL (based on quantitative polymerase chain reaction analysis) are generally considered low to moderate, but since *Dehalococcoides* spp. comprise a small percentage of the total community, *Dehalococcoides* spp. measured at these concentrations may be considered relatively high. *Dehalococcoides* spp. do not use chlorinated VOCs as energy sources for growth, and thus the data suggest the presence of an organic substrate that is supporting microbial activity at least to some extent, and stimulating reductive dechlorinators.

*Dehalococcoides* spp. are the only organisms known to dechlorinate cis-1,2-DCE to VC and prevent buildup of cis-1,2-DCE. Since many organisms are capable of degrading VC, the presence of *Dehalococcoides* spp. provides evidence for the metabolic capability of the system to bring about complete reductive dechlorination of chlorinated ethenes and suggests a low potential for buildup of cis-1,2-DCE, provided that sufficient substrate is present. Thus, while *Dehalococcoides* spp. is clearly present at this site, high levels of cis-1,2-DCE relative to VC indicate that reductive dechlorination may be substrate limited. It is also possible that the native strain is not efficient in the reductive dechlorination of cis-1,2-DCE. This is supported, to some extent, by the functional gene data presented below.

**Functional Genes:** TCE reductase and BAV1 VC reductase are enzymes that are involved in dechlorination of TCE, cis-1,2-DCE, and VC, respectively. It is important to note that the assays

# FORMER BUILDING 88 INVESTIGATION REPORT

TABLE I0-3

## VOC CONCENTRATIONS ANALYSIS FOR BIOMARKER SAMPLES FORMER NAS MOFFETT FIELD MOFFETT FIELD, CA

Sample Location and Depth Interval (feet bgs)	Matrix	VOC Concentrations (µg/L for groundwater; µg/kg for soil)			
		PCE	TCE	cis-1,2-DCE	VC
CPT-88-3 (10-14)	Groundwater	300	700	1,500	1.7
CPT-88-3 (46-48)	Groundwater	11	1,700	160	0.44J
CPT-88-3 (12-13)	Soil	3500	1,800	1,300	6U
CPT-88-3 (46.5-47.5)	Soil	2.5	310	14	6U
CPT-88-19 (6-9)	Groundwater	830	450	440	0.91
CPT-88-19 (47-50)	Groundwater	130	1,400	53	0.5U
CPT-88-19 (6-7)	Soil	540	280	300	6U
CPT-88-19 (48-49)	Soil	16	190	6.8	6U

### Notes:

Bold – Indicates value above method detection limit

### Abbreviations and Acronyms:

µg/kg – micrograms per kilogram

µg/L – micrograms per liter

bgs – below ground surface

CA – California

cis-1,2-DCE – cis-1,2-dichloroethene

J – estimated value

NAS – Naval Air Station

PCE – tetrachloroethene

TCE – trichloroethene

U – not detected at or above the laboratory reporting limit (value indicates reporting limit)

VC – vinyl chloride

VOC – volatile organic compound

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# FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 10-4

## RESULTS OF PHOSPHOLIPID FATTY ACIDS ANALYSIS FOR TOTAL VIABLE BIOMASS AND PHYSIOLOGICAL STATUS MARKERS FORMER NAS MOFFETT FIELD MOFFETT FIELD, CA

Sample Location And Depth Interval (feet bgs)	Matrix	Total Biomass (cells/mL or g)	Slowed Growth Index <sup>a</sup>	Permeability Index <sup>b</sup>
CPT-88-3 (46-48)	Groundwater	1.92E+06	NS	0.30
CPT-88-3 (10-14)	Groundwater	9.94E+05	0.14	0.37
CPT-88-3 (12-13)	Soil	6.00E+06	0.45	0.15
CPT-88-3 (47-48)	Soil	1.57E+05	NS	NS
CPT-88-19 (6-9)	Groundwater	1.04E+06	0.90	0.24
CPT-88-19 (47-50)	Groundwater	2.31E+06	0.04	0.31
CPT-88-19 (6-7)	Soil	5.19E+05	1.77	NS
CPT-88-19 (48-49)	Soil	9.54E+04	NS	NS

**Notes:**

<sup>a</sup> Slow Growth Index – Ratio of the amount of specific phospholipid fatty acids produced in response to starvation or slow growth conditions to the amount produced under favorable normal conditions

<sup>b</sup> Permeability Index – Ratio of the amount of specific phospholipid fatty acids produced in response to toxic conditions to the amount produced under normal conditions

**Abbreviations and Acronyms:**

bgs – below ground service

CA – California

g – grams

mL – milliliter

NAS – Naval Air Station

NS – physiological status markers not detected

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# FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 10-5

## RESULTS OF QUANTITATIVE POLYMERASE CHAIN REACTION ANALYSIS FOR DHC AND FUNCTIONAL GENES FORMER NAS MOFFETT FIELD MOFFETT FIELD, CA

Sample Location And Depth Interval (feet bgs)	Matrix	Units	DHC spp.	BAV1 VC R-Dase	TCE R-Dase
CPT-88-3 (46-48)	Groundwater	cells/mL	2.23E+01	<1.43E+00	<1.43E+00
CPT-88-3 (10-14)	Groundwater	cells/mL	2.22E+04	<8.67E+02	3.97E+03
CPT-88-3 (12-13)	Soil	cells/g	2.16E+04	<8.85E+02	<8.85E+02
CPT-88-3 (47-48)	Soil	cells/g	1.45E+03	<9.56E+02	<9.56E+02
CPT-88-19 (6-9)	Groundwater	cells/mL	<5.95E-01	<5.95E-01	<5.95E-01
CPT-88-19 (47-50)	Groundwater	cells/mL	<5.49E-01	<5.49E-01	<5.49E-01
CPT-88-19 (6-7)	Soil	cells/g	<9.84E+02	<9.84E+02	<9.84E+02
CPT-88-19 (48-49)	Soil	cells/g	9.72E+02	<8.87E+02	<8.87E+02

### Notes:

BAV1 is a species of DHC.

### Abbreviations and Acronyms:

bgs – below ground surface  
 CA – California  
 DHC – *Dehalococcoides* spp.  
 g – grams  
 mL – milliliter  
 NAS – Naval Air Station  
 spp. – species  
 TCE R-Dase – trichloroethene reductase  
 VC R-Dase – vinyl chloride reductase

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conducted are specific to deoxyribonucleic acid sequences coding for these enzymes from one strain of *Dehalococcoides* spp. While these sequences are believed to be conserved among other strains, this is not currently well understood. In addition, while *Dehalococcoides* spp. are the only known organisms capable of reductively dechlorinating cis-1,2-DCE, a variety of other organisms can carry out reductive dechlorination of TCE and VC. Thus, care must be exercised in interpreting these results.

In general, if high levels of functional genes are detected in conjunction with *Dehalococcoides* spp., it is a positive indicator that the native *Dehalococcoides* spp. strain contains significant metabolic capabilities for reductive dechlorination. However, if high levels are not detected, it is possible that 1) the metabolic capability is weakly represented in the native *Dehalococcoides* spp. strain(s), or 2) native *Dehalococcoides* spp. strains harbor reductases coded by deoxyribonucleic acid sequences that are not detectable via the current methods, but the strains are capable of carrying out reductive dechlorination of TCE, cis-1,2-DCE and VC. Only TCE reductase was detected, in one sample only. Based on the *Dehalococcoides* spp. and the accompanying chlorinated VOC data, this suggests that the latter of these possibilities may be the case. For example, *Dehalococcoides* spp. with adequate metabolic capabilities is present at the site, but the genes coding for the reductases are not readily detectable. Based on the relatively high occurrence of *Dehalococcoides* spp. and the presence of VC, the efficiency in dechlorination of cis-1,2-DCE would likely increase if substrate enhancement is carried out.

### 10.3.3 Conclusions

The biomarker analysis yielded the following general conclusions:

- Results from the phospholipid fatty acid analysis showed that viable biomass is present in quantities that are generally considered to be moderate and would be supportive of enhanced in situ bioremediation or monitored natural attenuation.
- The microbial community appears to be reasonably diverse.
- *Dehalococcoides* spp. were detected at relatively high concentrations for a non-substrate-amended site, and the distribution appears to vary.
- Functional genes were detected at low frequency.
- Although not definitive, the presence of, along with significant amounts of cis-1,2-DCE and trace amounts of VC, suggests that the native *Dehalococcoides* spp. strain is likely substrate limited, but its efficiency in carrying out reductive dechlorination is not known.

Overall, these data suggest that microbial presence/activity would not be a barrier to enhanced in situ bioremediation. In addition, because *Dehalococcoides* spp. are present at the site in relatively high concentrations, this site appears to be a reasonable candidate for biostimulation through substrate addition. However, based on significant cis-1,2-DCE concentrations and the relatively low concentrations of VC, the conversion of cis-1,2-DCE to VC may be initially slow.

## 10.4 SUBSTRATE SCREENING

Reductive dechlorination is an enhanced in situ bioremediation mechanism that can be used to destroy chlorinated VOCs in groundwater. This generally involves delivery of an electron donor (organic substrate) to the subsurface to stimulate growth and metabolism of indigenous bacteria, and/or in limited cases, bacteria that are anthropogenically introduced (bioaugmented). Through microbial respiration, sequential electron donor/acceptor reactions occur within the microbial community, creating a reduced, biologically active zone within the subsurface. In this zone, hydrogen gas is produced through fermentation, which serves as the electron donor for bacteria, which carry out reductive dechlorination.

A wide variety of substrates are available for use in enhanced in situ bioremediation, each having various pros and cons in terms of effectiveness, timeframe to achieve remediation goals, and ease in application (Morse et al., 1998). Initial substrate screening has traditionally been conducted through laboratory microcosm studies; however, microcosm studies typically do not adequately represent subsurface conditions in the field, and often, the level of information obtained is not commensurate with the costs and time involved (Air Force Center for Environmental Excellence, Naval Facilities Engineering Service Center, and Environmental Security Technology Certification Program, 2004). The biotrap approach provides cost-effective preliminary information regarding preferred substrate(s) for this site.

### 10.4.1 Methodology

Biotraps were installed in monitoring wells W9-20 and W9-46. Biotraps were suspended in groundwater, allowing native bacteria growing within the aquifer to colonize the traps and form biofilms on the traps. The biotraps were baited (impregnated) with various substrates to assess the response of the in situ community (Table 10-6). An unbaited biotrap (containing no substrate) was also included in each well as a control.

The biofilms accumulated on the traps were extracted and analyzed via quantitative polymerase chain reaction for the following:

## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 10-6

### BIOTRAP SUBSTRATES FORMER NAS MOFFETT FIELD MOFFETT FIELD, CA

Substrate	Description	Vendor
Sodium lactate	Reagent-grade, from soluble substrate	JT Baker
Molasses	Soluble substrate	Generic
HRC <sup>®</sup>	Viscous fluid, proprietary formulation - slowly releases lactate upon hydration	Regensis
Vegetable Oil	Viscous fluid, proprietary formulation - EOS	Solutions IES
EHC <sup>™</sup>	Solid (can be delivered as pellets, granules, flowable powders, or slurries), consists of plant-based carbon in conjunction with zero-valent iron	Adventus Americas
None	Control	N/A

#### Notes:

An unbaited trap (containing no substrate) was deployed in each well as a control along with baited traps.

EHC<sup>™</sup> is a substrate name.

Beads are 2-3 mm in diameter.

#### Abbreviations and Acronyms:

CA – California

EOS – Edible Oil Substrate

HRC<sup>®</sup> – Hydrogen Release Compound

mm – millimeter

N/A – not applicable

NAS – Naval Air Station

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- Eubacteria (which represents total viable biomass)
- *Dehalococcoides* spp., the only organism known to bring about complete reductive dechlorination of chlorinated VOCs to ethene
- Methanogenic bacteria (methanogens), which provide an indication of the subsurface redox environment

The biofilms were also subjected to phospholipid fatty acid analysis for the following:

- Total viable biomass
- Microbial community structure, denoting percentages of metabolically specific groups of microbes

The data were used to provide preliminary screening information regarding the most effective substrate for enhanced in situ bioremediation for remediation of PCE related to the former Building 88.

## 10.4.2 Results

Data from phospholipid fatty acids and quantitative polymerase chain reaction analysis of biofilms accumulated on the biotrap indicated that there may be differences in the stimulatory effects of the various substrates tested on the native microbial community. These data are presented and discussed in the following subsections.

### 10.4.2.1 Phospholipid Fatty Acid Analysis

Phospholipid fatty acids are essential components of the membranes of virtually all living cells, but break down rapidly upon cell death, and thus reflect only viable biomass. Various phospholipid fatty acids are produced by different types of organisms, and thus overall phospholipid fatty acid profiles can be used to “fingerprint” the in situ microbial community. Phospholipid fatty acids can also vary based on environmental conditions. Three different types of information can be obtained from phospholipid fatty acid profiles: biomass, community structure (including identification of general groups of bacteria that carry out various metabolic functions), and physiological status. The following discussions focus on biomass and specific community members as indicators of the potential for reductive dechlorination. Relevant phospholipid fatty acid data are presented in Table 10-7.

**Total Phospholipid Fatty Acid Biomass:** As can be seen in Table 10-7, biomass was generally observed to be at least one order of magnitude higher in baited traps than in control traps. Molasses was the most effective substrate in this regard, with HRC<sup>®</sup> and EHC<sup>™</sup> demonstrating significant effects as well. This does not provide specific information regarding reductive dechlorination, but provides further confirmation that biomass can be effectively stimulated via substrate addition.

**Community Structure:** The groups of interest are the *Firmicutes* and the sulfur-reducing bacteria. *Firmicutes* are indicated by the presence of terminally branched saturated phospholipid fatty acid and include anaerobic fermentors (mainly clostridia/bacterioides-like organisms) that produce the hydrogen required by reductive dechlorinators. Sulfur-reducing bacteria are indicated by the presence of mid-chain branched saturated phospholipid fatty acids, and high percentages are suggestive of strongly reducing conditions (White et al., 1997).

For the biotrap samples installed in groundwater monitoring well W9-20, phospholipid fatty acids indicative of *Firmicutes* were not detected in the control trap but were detected in all other baited traps. Sodium lactate, HRC<sup>®</sup>, and molasses had relatively high percentages of *Firmicutes*, with sodium lactate and HRC<sup>®</sup> having the highest percentages. For the biotrap samples installed in groundwater monitoring well W9-46, phospholipid fatty acid indicative of *Firmicutes* were found at a relatively high percentage in the control trap, but were detected at much higher percentages in traps baited with molasses and HRC<sup>®</sup>. Overall, these data suggest that HRC<sup>®</sup>, molasses, and sodium lactate were most effective in stimulating fermenting bacteria, which generate hydrogen that drives reductive dechlorination.

Phospholipid fatty acids indicative of sulfur-reducing bacteria were not detected in either control trap, but were detected in all baited traps except for the Edible Oil Substrate in monitoring well W9-46. The substrates that showed the greatest propensity for stimulation of sulfur-reducing bacteria (indicative of low redox environments) included HRC<sup>®</sup>, sodium lactate, and molasses, with HRC<sup>®</sup> having the greatest effect in groundwater monitoring well W9-46.

#### 10.4.2.2 Quantitative Polymerase Chain Reaction

The quantitative polymerase chain reaction data allow the assessment of substrates in terms of their ability to stimulate general biomass and *Dehalococcoides* spp., which are both desirable with respect to generating conditions supportive of reductive dechlorination and carrying out the complete metabolic pathway. In addition, the presence of methanogens indicates a low oxidation-reduction potential, but excessive methanogenic activity can compete with reductive dechlorination for substrate and potentially inhibit the process. The results from the quantitative polymerase chain reaction analysis are presented in Table 10-8 and are discussed in the following subsections.

***Dehalococcoides* spp:** *Dehalococcoides* spp. were not detected in any of the traps installed in groundwater monitoring well W9-20 but were detected in two of the traps installed in groundwater monitoring well W9-46. This confirms the presence of, and ability to stimulate, *Dehalococcoides* spp. at this site. However, this does not provide information regarding the distribution of *Dehalococcoides* spp. The traps in which *Dehalococcoides* spp. were detected were baited with sodium lactate and HRC<sup>®</sup>. Both of these compounds are lactate-based, which

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TABLE 10-7

## SELECTED RESULTS OF PHOSPHOLIPID FATTY ACIDS ANALYSIS FOR BAITED BIOTRAPS FORMER NAS MOFFETT FIELD MOFFETT FIELD, CA

Well Number	Matrix	Biomass (cells/bead)	<i>Firmicutes</i> <sup>1</sup> (% of total PLFA)	Sulfur-reducing Bacteria <sup>2</sup> (% of total PLFA)
W9-20	Sodium Lactate	4.27E+05	17.51	1.68
W9-20	Molasses	3.89E+06	13.93	1.55
W9-20	HRC®	2.46E+06	16.91	3.88
W9-20	EHC™	2.3E+06	3.16	0.51
W9-20	EOS	9.36+05	6.43	3.15
W9-20	Control	3.1E+04	0.00	0.00
W9-46	Sodium Lactate	7.24E+05	16.19	3.51
W9-46	Molasses	1.12E+07	28.16	5.50
W9-46	HRC®	2.51E+06	38.84	21.84
W9-46	EHC™	2.01E+06	9.03	2.14
W9-46	EOS	1.05E+06	4.74	0.00
W9-46	Control	1.31E+05	16.48	0.00

### Notes:

<sup>1</sup> As indicated by the presence of terminally branched saturated phospholipid fatty acid – high percentages indicate the presence of bacteria classified as *Firmicutes*, which include anaerobic fermentors (mainly clostridia/bacterioides-like organisms) that produce hydrogen required by reductive dechlorinators.

<sup>2</sup> As indicated by the presence of mid-chain branched saturated phospholipid fatty acid, which are common in sulfur-reducing bacteria – high percentages indicate the proliferation of sulfur-reducing bacteria and thus, are suggestive of strongly reducing conditions.

Beads are 2-3 mm in diameter.

### Abbreviations and Acronyms:

CA - California  
EOS – Edible Oil Substrate  
HRC® – Hydrogen Release Compound  
mm – millimeter  
NAS – Naval Air Station  
PLFA – phospholipids fatty acid

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# FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 10-8

## RESULTS OF QUANTITATIVE POLYMERASE CHAIN REACTION ANALYSIS FOR BAITED BIOTRAPS FORMER NAS MOFFETT FIELD MOFFETT FIELD, CA

Well	Substrate	Units	DHC	Eubacteria	Methanogens
W9-20	Sodium Lactate	cells/bead	<2.5E+01	2.97E+07	1.3E+05
W9-20	Molasses	cells/bead	<2.5E+01	6.63E+07	6.29E+04
W9-20	HRC <sup>®</sup>	cells/bead	<2.5E+01	4.8E+07	9.53E+04
W9-20	EHC <sup>™</sup>	cells/bead	<2.5E+01	1.19E+07	4.86E+04
W9-20	EOS	cells/bead	<2.5E+01	4.29E+07	8.76E+05
W9-20	Control	cells/bead	<2.5E+01	1.4E+07	5.29E+04
W9-46	Sodium Lactate	cells/bead	1.45E+02	2.17E+07	4.75E+05
W9-46	Molasses	cells/bead	<2.5E+01	7.17E+07	2.29E+06
W9-46	HRC <sup>®</sup>	cells/bead	4.52E+01	8.18E+07	1.12E+06
W9-46	EHC <sup>™</sup>	cells/bead	<2.5E+01	1.25E+07	3.09E+05
W9-46	EOS	cells/bead	<2.5E+01	4.07E+07	2.51E+06
W9-46	Control	cells/bead	<2.5E+01	1.67E+07	9.68E+04

### Abbreviations and Acronyms:

CA – California

DHC – *Dehalococcoides* spp.

HRC<sup>®</sup> – Hydrogen Release Compound

EOS – Edible Oil Substrate

NAS – Naval Air Station

spp. – species

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suggests that lactate has the potential for stimulating complete reduction of chlorinated VOCs at this site, based on its ability to promote growth of *Dehalococcoides* spp.

**Eubacteria:** Measurement of eubacteria detects deoxyribonucleic acid sequences that are present in essentially all bacteria and thus provides for quantification of the total biomass represented by the complete microbial community. Eubacteria data suggest that total biomass in the baited traps is generally higher than that in the control traps. However, this is not conclusive, as one or more orders of magnitude differences are generally considered indicative of significant differences in bacterial numbers. The highest biomass was measured in the trap baited with HRC<sup>®</sup>, installed in groundwater monitoring well W9-46.

**Methanogenic Bacteria:** The presence/proliferation of methanogenic bacteria indicates the presence of strongly reducing conditions, which are favorable for reductive dechlorination. Methanogenic bacteria were detected in biofilms in all traps installed in both groundwater monitoring wells, including control traps. For groundwater monitoring well W9-20, values from the baited traps did not appear to be elevated over control traps, with the exception of the traps baited with sodium lactate and Edible Oil Substrate. For groundwater monitoring well W9-46, quantities of methanogenic bacteria detected on baited traps were at least one order of magnitude greater than the control trap. This provides some evidence of the occurrence of anaerobic bioprocesses under conditions that support reductive dechlorination.

#### 10.4.3 Conclusions

Data from the biotrap build upon the biomarker data generated in analysis of soil and groundwater, which indicated the presence of viable biomass and *Dehalococcoides* spp. in the subsurface at this site. General conclusions from the biotrap work are as follows:

- All substrates tested demonstrated the ability to stimulate microbial growth.
- Methanogenic populations were elevated in baited traps versus controls, demonstrating the ability to stimulate strongly reducing conditions required for reductive dechlorination.
- Phospholipid fatty acid biomarkers indicative of *Firmicutes* and sulfur-reducing bacteria generally comprised higher percentages of total phospholipid fatty acid in baited traps versus non-baited traps, indicating the ability to stimulate anaerobic processes supportive of reductive dechlorination.
- Lactate-based substrates, and particularly HRC<sup>®</sup>, are potentially the most effective substrate for use in enhanced in situ bioremediation at this site.

Overall, these data support the potential for successful implementation of enhanced in situ bioremediation without bioaugmentation through provision of a lactate-based substrate. However, analysis of microbial biomarkers on baited biotrap does not demonstrate that complete reductive dechlorination will occur. Rather, it provides evidence that the indigenous

community has the potential metabolic capability to bring about the process when provided with a particular substrate.



## 11.0 CONCLUSIONS

This investigation was performed to determine if residual contamination from Building 88 existed, and if present, if such contamination was contributing tetrachloroethene (PCE) contamination to the shallow groundwater.

### 11.1 INTERPRETED GEOLOGY AND HYDROSTRATIGRAPHY

The subsurface beneath the Building 88 investigation area is characterized by interbedded coarse-grained soil (sands and gravels) and fine-grained soil (silts and clay). The distribution of coarse-grained and fine-grained soil differ based on location and depth. Coarse-grained soil, where continuous, trends north-south.

The upper 17 feet of the investigation area contains mostly fine-grained soil, with isolated native coarse-grained deposits. Anastomosing coarse-grained soil channels are observed from approximately 20 feet to approximately 32 feet below ground surface (bgs) and are interbedded with fine-grained overbank deposits. These channels are observed at depth intervals of approximately 20 to 25 feet bgs and 29 to 32 feet bgs, and are encased in fine-grained soil. The channels are depicted as continuous, but these channels could also be a series of laterally and vertically interconnected segments of channels. The thickness of the channels varies spatially, but averages approximately 2 feet. There appears to be little to no single coarse-grained layer vertically connecting these two intervals.

Two relatively continuous channel deposits of coarse-grained soil are observed from approximately 40 to 46 feet bgs and 45 to 52 feet bgs in the western portion of the study area. The channels are depicted as continuous, but these channels could also be a series of laterally and vertically interconnected segments of channels. The deposits range in thickness from approximately 1 to 6 feet and are separated by approximately 1 to 4 feet of silt.

The distribution of coarse-grained and fine-grained sediment layers above approximately 35 feet bgs (analogous to the upper portion of the A aquifer) and below 35 feet bgs (analogous to the lower portion of the A aquifer) suggests two separate fluvial depositional environments. The discontinuous nature of the coarse-grained layers encased in fine-grained soil from surface to 35 feet bgs is typical of a braided fluvial environment. The deposits apparent below 40 feet bgs may be indicative of a floodplain environment. This interpretation of differing hydrogeologic conditions is consistent with what was observed during pump testing, as described in the *West-Side Aquifers Treatment System [WATS] Optimization Completion Report* (Tetra Tech FW [TtFW], 2005c). Based on water levels shown in the upper portion of the A aquifer in December 2004, in the area of WATS extraction well EA2-2 (TtFW, 2005b), there is hydraulic

communication between the lower portion of the A aquifer and the upper portion of the A aquifer.

## **11.2 CLASSIFICATION OF GROUNDWATER**

The majority of the groundwater data clusters together as a high calcium/sulfate water. The data suggest no spatial variance (vertically or laterally) and limited variance in chemical composition. The similarity in water vertically and laterally is interpreted to suggest that there is hydraulic communication vertically and laterally within the A aquifer.

## **11.3 SOURCE EVALUATION AND CONTAMINANT FATE AND TRANSPORT**

For this investigation, soil with PCE concentrations greater than the U.S. Environmental Protection Agency (EPA) Region 9 residential Preliminary Remediation Goal (PRG) of 480 µg/kg (EPA, 2004b) was considered a PCE source area. Two PCE source areas were identified and confirmed during the investigation: the eastern and northern portion of the Building 88 footprint; and the traffic island located at the corner of Cummins Avenue, Cody Road, and Wescoat Road.

### **11.3.1 Former Building 88 Area Soils**

The former dry cleaning facility had numerous wastewater collection trenches, floor drains, subsurface piping and sumps. Whether through cracks in the wastewater collection trenches, floor drains, subsurface piping and/or sump, PCE was released into the subsurface. Releases occurred in two areas: in the area of Sump 66 and in the eastern section of the Building 88 footprint. The maximum PCE concentration in soil samples was collected beneath the Building 88 footprint (6,700 micrograms per kilogram [µg/kg]), located in the area of Sump 66. There is de minimus soils contamination found in the southern and western portion of the Building 88 footprint.

The majority of PCE soil contamination greater than the residential soils PRG of 480 µg/kg is relatively shallow. Soil with PCE concentrations greater than 480 µg/kg extends to a maximum depth of approximately 35 feet bgs in the Sump 66 vicinity. It ranges from 20 to 32 feet bgs along a former floor drain line upstream of Sump 66 and approximately 20 feet bgs underlying the northern excavation area. Shallow PCE contamination in soil in the Building 88 area does not extend laterally much farther than the building footprint. The estimated volume of soil with PCE concentrations greater than 480 µg/kg within the Building 88 area is 775 cubic yards. The estimated mass of PCE in the soil concentrations greater than 480 µg/kg within the Building 88 area is 2.5 pounds.

### 11.3.2 Traffic Island Area Soils

The bulk of the soil contamination at the traffic island area (at concentrations greater than the residential soils PRG) is centered in the area of an apparent historic leak from the sewer at or downstream from a 90° bend at the traffic island at the intersection of Wescoat Road, Cody Road, and Cummins Avenue. The sewer was the discharge for wastewater from the Building 88's Sump 66. PCE contamination at the traffic island appears to have migrated vertically downward and laterally along the sewer trench to the north. The PCE soil contamination greater than the residential soils PRG of 480 µg/kg extends vertically to about 70 feet bgs below the leak in the sewer. The volume of PCE-contaminated soils at concentrations greater than 480 µg/kg in the traffic island area is calculated to be 12,400 cubic yards. The estimated mass of PCE in the soil concentrations greater than 480 µg/kg in the traffic island area is calculated to be 32 pounds.

### 11.3.3 Building 88 Area Groundwater

PCE concentrations in groundwater samples collected beneath the Building 88 area range from less than the laboratory reporting limit of 0.5 micrograms per liter (µg/L) to a high estimated value of 2,100 µg/L. In general, in the southern and western portion of the Building 88 footprint, PCE concentrations are less than 20 µg/L in the upper 30 feet bgs (upper portion of the A aquifer), and less than the EPA Region 9 drinking water Maximum Contaminant Level of 5 µg/L in samples collected from below 30 feet bgs (lower portion of the A aquifer).

In the eastern portion of the Building 88 footprint and in the area of Sump 66, PCE concentrations in groundwater samples are highest in the upper 15 feet (to a maximum concentration of 1,100 µg/L). The relative magnitude and location of the groundwater contamination to a depth of 20 feet bgs is consistent with the shallow soils contamination found in the eastern portion of Building 88 and in the area of Sump 66. An increase in both PCE concentration and volume of impacted groundwater at 21 to 30 feet bgs may be due to lithology, as there are more permeable soils found at this depth interval.

PCE concentrations in groundwater increase with depth to the north of the Building 88 area at depths greater than 30 feet bgs (lower portion of the A aquifer) to a maximum estimated value of 2,100 µg/L in a groundwater sample collected from 56 to 59 feet bgs. It appears that PCE-contaminated groundwater (possibly as dense non-aqueous phase liquid [DNAPL]), moved vertically downward to about the 20-foot bgs depth underlying the former building. At the 21- to 30-foot bgs depth interval, the PCE-contaminated groundwater moved advectively and/or down-dip to the north, if in DNAPL phase. PCE contamination then found a vertical pathway and moved to the investigated depth of about 60 feet bgs. PCE-contaminated groundwater in the lower A aquifer appears to be moving generally downgradient by advection in the more permeable units. The apparent northeastern localized flow direction may be caused by a combination of lithology (channelization) and pumping of the lower A aquifer.

### 11.3.4 Traffic Island Area Groundwater

PCE concentrations in groundwater samples collected south (hydraulically upgradient) of the traffic island were less than the PCE MCL of 5 µg/L. Concentrations of PCE in groundwater samples collected from beneath the traffic island ranged from 2,000 µg/L to 15,000 µg/L. PCE concentrations in groundwater decrease to the north.

The PCE groundwater contamination to a depth of 15 feet bgs has an elongated shape, which is likely controlled by the utility corridor underlying Cummins Avenue and Wescoat Road. There is an apparent increase in PCE concentration and decrease in volume of impacted groundwater at the 16- to 20-foot bgs interval, which may be due to encountering native fine-grained soils restricting the movement of PCE contamination. Below a depth of 30 feet bgs, PCE contaminant migration appears to be controlled by the more permeable layers of soil.

It appears that PCE contamination moved vertically down to a depth of about 70 feet bgs below the traffic island and did not fully penetrate a clay layer at this depth. Based on the PCE concentrations measured in this investigation, the vertical movement of contamination in the traffic island was likely a combination of DNAPL and dissolved phase. DNAPL is likely still present and can be detected in field samples in the depth interval of 6 to 20 feet bgs in the traffic island.

### 11.3.5 Downgradient PCE Plume

The source area for both the upper and lower A aquifer PCE plumes appears to be related to the northern and eastern portion of the Building 88 area, Sump 66, the Sump 66 discharge sewer along Wescoat Road, and at the traffic island along Cummins Avenue. There are two PCE plume lobes within the upper portion of the A aquifer. The lobe to the east is a narrow linear feature along Cummins Avenue. The eastern lobe, found in the shallowest portions of the upper A aquifer, is interpreted to be controlled by the backfill of the utilities along Cummins Avenue. The eastern lobe is about 1,000 feet long and generally less than 50 feet wide. The concentrations of PCE in the eastern lobe of the upper A aquifer decrease to the north, away from the traffic island source area. The highest concentration of PCE within the eastern lobe, downgradient of the traffic island source area, was reported at an estimated concentration of 830 µg/L. The western PCE lobe is approximately 2,000 feet long and from 150 to 250 feet wide. The plume has an elongated shape in a north-south direction, is interpreted to be due to the channelization characteristics of coarse-grained soil, and may be influenced by extraction well pumping from the upper A aquifer. The highest concentration of PCE within the western lobe, downgradient from the former Building 88 source area, was reported at an estimated concentration of 150 µg/L. The total amount of PCE in the upper portion of the A aquifer, including the eastern and western lobes, is calculated to be 48 pounds.

The PCE groundwater plume, as detected in the lower A aquifer is approximately 1,600 feet long and varies from 250 to 500 feet wide. The plume is located immediately west of Hangar 1. The northern edge of the PCE plume is lobate. The highest concentration of PCE within the lower portion of the A aquifer, downgradient of the Building 88 or traffic island areas, was at an estimated concentration of 530 µg/L. The amount of PCE in the lower portion of the A aquifer is calculated to be 70 pounds.

Horizontal migration of PCE-contaminated groundwater from the Building 88 and the traffic island areas appear to be limited in the upper 30 feet by the lack of continuous sand channels. Although shallow (less than 30 feet bgs) PCE concentrations are high within permeable lenses in the Building 88 and traffic island areas, the downgradient concentrations in the upper portion of the A aquifer are significantly lower. It is likely that the lower PCE concentrations in the upper A aquifer downgradient of the source areas are a function of sorption, dispersion, and dilution.

Horizontal migration of PCE-contaminated groundwater from the Building 88 and the traffic island areas appears to be prevalent below 30 feet due to the north-south continuity of sandy soils in the 40- to 46-foot interval and 45- to 52-foot interval of the lower A aquifer influenced by extraction well pumping in the lower A aquifer. Although PCE concentrations at depths greater than about 35 feet bgs are relatively high within lenses in the Building 88 and traffic island areas, the downgradient PCE concentrations in the lower portion of the A aquifer are significantly lower. It is likely that the lower PCE concentrations in the lower A aquifer downgradient of the source areas are a function of sorption, dispersion, and dilution.

There appears to be de minimus PCE impacting the B2 aquifer zone.

## **11.4 TREATABILITY STUDIES**

Soil and groundwater samples were collected to conduct chemical oxidation treatability tests, to evaluate the presence of naturally occurring microorganisms capable of biodegrading chlorinated VOCs, and to assess the response of microorganisms to various substrates.

### **11.4.1 Chemical Oxidation**

The chemical oxidation (Fenton's reagent) study results for groundwater indicated that a 99.7 percent volatile organic compound (VOC) concentration reduction was noted after the lowest treatment condition (one dose). The study results for the soil-water slurry indicate a persistence of PCE (39 percent), cis-1,2-dichloroethene (cis-1,2-DCE) (5 percent), and trichloroethene (TCE) (35 percent) after three dosages, and a slight rebound of PCE and TCE concentrations.

### 11.4.2 Biomarker Analysis

The biomarker analysis yielded the following general conclusions:

- Results from the phospholipid fatty acid analysis showed that viable biomass is present in quantities that are generally considered to be moderate and would be supportive of enhanced in situ bioremediation.
- The microbial community appears to be reasonably diverse.
- *Dehalococcoides* spp. were detected at relatively high concentrations for a non-substrate-amended site, and the distribution appears to vary.
- Functional genes were detected at low frequency.
- Although not definitive, the presence of *Dehalococcoides* spp., along with significant amounts of cis-1,2-DCE and trace amounts of vinyl chloride (VC), suggests that the native *Dehalococcoides* spp. strain is likely substrate limited, but it may not be capable of carrying out reductive dechlorination of cis-1,2-DCE to VC.

Overall, these data suggest that microbial presence/activity would not be a barrier to enhanced in situ bioremediation. In addition, because *Dehalococcoides* spp. is present at the site in relatively high concentrations, this site appears to be a reasonable candidate for biostimulation through substrate addition. However, based on significant cis-1,2-DCE concentrations and the relatively low concentrations of VC, the conversion of cis-1,2-DCE to VC may be initially slow.

### 11.4.3 Substrate Screening

Data from the biotrap build upon the biomarker data generated in analysis of soil and groundwater, which indicated the presence of viable biomass and *Dehalococcoides* spp. in the subsurface at this site. General conclusions from the biotrap work are as follows:

- All substrates tested demonstrated the ability to stimulate microbial growth.
- Methanogenic populations were elevated in baited traps vs. controls, demonstrating the ability to stimulate strongly reducing conditions required for reductive dechlorination.
- Phospholipid fatty acid biomarkers indicative of *Firmicutes* and sulfur-reducing bacteria generally comprised higher percentages of total phospholipid fatty acid in baited traps versus non-baited traps, indicating the ability to stimulate anaerobic processes supportive of reductive dechlorination.
- Lactate-based substrates, particularly HRC<sup>®</sup>, are potentially the most effective substrate for use in enhanced in situ bioremediation at this site.

Overall, these data support the potential for successful implementation of enhanced in situ bioremediation without bioaugmentation through provision of a lactate-based substrate. However, analysis of microbial biomarkers on baited biotrap does not demonstrate that

complete reductive dechlorination will occur. Rather, it provides evidence that the indigenous community has the potential metabolic capability to bring about the process when provided with a particular substrate.

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## **APPENDIX A**

### **PROJECT PHOTOGRAPHS**

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## **APPENDIX A**

### **PROJECT PHOTOGRAPHS**

Photograph A-1	Former Building 88 Area and Footprint Staking
Photograph A-2	Subsurface Utility Location Survey
Photograph A-3	Soil Gas Probe
Photograph A-4	Soil Gas Probe Installation
Photograph A-5	Soil Gas Probe Surface Completion
Photograph A-6	Soil Gas Sample Collection
Photograph A-7	Continuous Core Drilling
Photograph A-8	Continuous Soil Core Sampling
Photograph A-9	Continuous Soil Core Sample Close-up
Photograph A-10	CPT/DPT Hand-augering
Photograph A-11	CPT Rig
Photograph A-12	CPT Logging
Photograph A-13	CPT/DPT Surface Completion

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## PHOTOGRAPH A-1

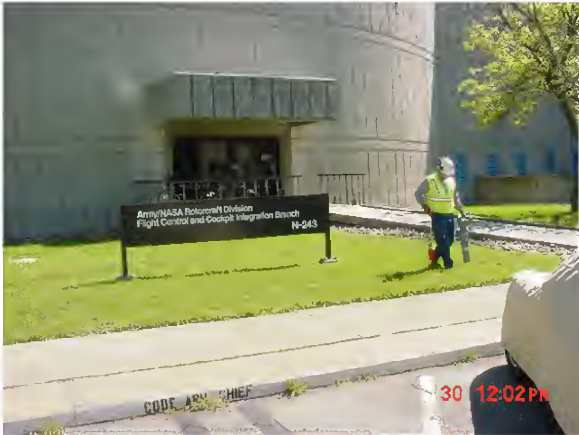
### Former Building 88 Area and Footprint Staking



Looking south from Wescoat Road at the vacant lot that was once Building 88. The surveyor is staking the southeastern corner of the Building 88 footprint. The aboveground storage tanks in the background are fuel tanks for the service station (located behind the tanks).

## PHOTOGRAPH A-2

### Subsurface Utility Location Survey



Looking east toward National Aeronautics and Space Administration (NASA) Building N243. The geophysical surveyor is detecting and marking out underground utilities.



### PHOTOGRAPH A-3

#### Soil Gas Probe



Soil gas probe consisting of a 1.4-inch-long, 0.35-inch-outside-diameter porous probe tip, connected to 0.25-inch-diameter Teflon® tubing using a barbed pressure fitting. The soil gas probe is inside 1-inch-diameter polyvinyl chloride (PVC) pipe to aid installation.

**PHOTOGRAPH A-4**  
**Soil Gas Probe Installation**



The probe tip and tube assembly inside PVC pipe are lowered to the bottom of the boring, with the probe tip resting on about 1-inch of filter sand. Five additional inches of filter sand are placed in the annular space across and above the probe tip while the PVC pipe is removed. Next, coarse grained bentonite is placed above the filter sand to land surface and then hydrated with potable water.

## PHOTOGRAPH A-5

### Soil Gas Probe Surface Completion



The bentonite surface seal is visually inspected after installation of the soil gas probe. One to 2 feet of tubing is left at the surface to collect the gas sample. The end of the tubing has an airtight cap attached to the tubing with a barbed fitting.

**PHOTOGRAPH A-6**  
**Soil Gas Sample Collection**



A soil gas sample is collected using a 60-cubic centimeter syringe. The syringe is threaded to the fitting at the end of the tubing for an airtight seal. During sampling, the syringe plunger was withdrawn at a constant rate in an effort to withdraw soil gas at a flow rate less than 200 milliliters per minute.

**PHOTOGRAPH A-7**  
**Continuous Core Drilling**



Looking toward the east at boring CC-88-3, standing within the Building 88 footprint. The continuous core boring was advanced to 59 feet below ground surface (bgs) using a hollow-stem auger drill rig, equipped with nominal 8 ¾-inch outside-diameter hollow-stem augers.

## PHOTOGRAPH A-8

### Continuous Soil Core Sampling



Core barrel with soil core sample from 19 to 24 feet bgs at CC-88-2. The field technician is collecting a sample in a wide-mouthed glass jar for total organic carbon analysis.

## PHOTOGRAPH A-9

### Continuous Soil Core Sample Close-up



Sample of continuous core at 36.5 feet bgs from CC-88-3. Shown in the photograph (center of core) is a small water filled fracture or root tube in a zone of silt. Water-filled fractures were also observed in CC-88-4 and CC-88-5 at approximately 36 to 37 feet bgs.

**PHOTOGRAPH A-10**  
**CPT/DPT Hand-augering**



Looking toward the south from a parking lot near the southwest corner of the intersection of Severyns Avenue and South Akron Road. Drillers at location CPT-88-8 are hand-augering to 5 feet bgs to avoid subsurface obstructions during cone penetrometer testing (CPT) or direct push technology (DPT) activities. Three borings (one CPT and two DPTs) were cleared by hand-augering at each CPT location.



## PHOTOGRAPH A-11

### CPT Rig



Looking northeast from Severys Avenue to the CPT rig set up on CPT-88-12, located in front of NASA Building N-243.

## PHOTOGRAPH A-12

### CPT Logging



Operator advancing a CPT at CPT-88-3. CPT rods are held in place by hydraulic grips (in red) and are pushed into the formations by a hydraulic press (in blue). Data from the CPT probe tip is transferred to the computer via a wire line seen emanating from the top of the rods.

**PHOTOGRAPH A-13**  
**CPT/DPT Surface Completion**



CPT/DPT surface completion at location CPT-88-2. Each boring (one CPT and two DPTs) was backfilled with a Portland cement-bentonite grout mixture pumped from the bottom of the boring using a tremie pipe in accordance with Santa Clara Valley Water District permit requirements. A wood stake was installed in the center boring. The location of the stake was later surveyed.

**APPENDIX B**

**ANALYTICAL RESULT REPORTS AND  
CHAIN-OF-CUSTODY DOCUMENTATION**

**(Provided on CD)**

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**TETRA TECH**  
1230 Chabala Street, Suite 400  
San Diego, CA 92131 (619) 234-6696

# CHAIN-OF-CUSTODY RECORD

NUMBER 10341

PROJECT NAME		PURCHASE ORDER NO.		ANALYSES REQUIRED										LABORATORY NAME		Project Information Section Do not submit to Laboratory					
PROJECT LOCATION		PROJECT NO.		PROJECT CONTACT PHONE NUMBER		PROJECT CONTACT		DATE COLLECTED		TIME COLLECTED		NO OF CONTAINERS		LEVEL		T		DEPTH		QC	
SAMPLER NAME		SAMPLER NO.		SAMPLER NO.		SAMPLER NO.		SAMPLER NO.		SAMPLER NO.		SAMPLER NO.		SAMPLER NO.		SAMPLER NO.		SAMPLER NO.		SAMPLER NO.	
86-1007-200A		4/15/05		10:00		10:00		1		1		1		1		1		0		5' 46"	
86-1007-200B		4/15/05		10:00		10:00		1		1		1		1		1		0		5' 46"	
86-1007-200C		4/15/05		10:00		10:00		1		1		1		1		1		0		5' 46"	
86-1007-201		4/15/05		10:00		10:00		1		1		1		1		1		0		5' 46"	
86-1007-202		4/15/05		10:00		10:00		1		1		1		1		1		0		5' 46"	
86-1007-203		4/15/05		10:00		10:00		1		1		1		1		1		0		5' 46"	
86-1007-204		4/15/05		10:00		10:00		1		1		1		1		1		0		5' 46"	
86-1007-205		4/15/05		10:00		10:00		1		1		1		1		1		0		5' 46"	
86-1007-206		4/15/05		10:00		10:00		1		1		1		1		1		0		5' 46"	
86-1007-207		4/15/05		10:00		10:00		1		1		1		1		1		0		5' 46"	
RELINQUISHED BY (Signature)		DATE		TIME		COMPANY		RECEIVED BY (Signature)		DATE		TIME		COMPANY		RECEIVED BY (Signature)		DATE		TIME	
COMPANY		DATE		TIME		COMPANY		RECEIVED BY (Signature)		DATE		TIME		COMPANY		RECEIVED BY (Signature)		DATE		TIME	
RELINQUISHED BY (Signature)		DATE		TIME		COMPANY		RECEIVED BY (Signature)		DATE		TIME		COMPANY		RECEIVED BY (Signature)		DATE		TIME	
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COMPANY		DATE		TIME		COMPANY		RECEIVED BY (Signature)		DATE		TIME		COMPANY		RECEIVED BY (Signature)		DATE		TIME	

SAMPLING COMMENT:

Bldg. 88

Soil Vapor

COMPOSITE DESCRIPTION

SAMPLE CONDITION UPON RECEIPT (FOR LABORATORY)  
TEMPERATURE: \_\_\_\_\_ SAMPLE CONDITION: ☒ INTACT ☐ BROKEN  
COOLER SEAL: ☐ INTACT ☐ BROKEN

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management



1230 Columbia Street, Suite 500  
San Diego, CA 92101 (619) 234-8696

## NUMBER

61  
62  
63  
64  
65

PROJECT NAME		PURCHASE ORDER NO		ANALYSES REQUIRED										LABORATORY NAME	
PROJECT LOCATION		PROJECT NO												LABORATORY ID	
SAMPLE NAME		AIRCELL NUMBER												(FOR LABORATORY)	
PROJECT CONTACT		PROJECT CONTACT PHONE NUMBER												50405E	
SAMPLE ID		DATE COLLECTED		TIME COLLECTED		NO OF CONTAINER		LEVEL		T		DEPTH		QC	
								3		4		START		END	
								V		P		A		R	
								E		T		E		E	
56-1007-205	4/10/05	13:47	1	---	---	---	---	---	---	---	---	---	0	5'	REC
56-1007-209	4/15/05	10:05	1	---	---	---	---	---	---	---	---	---	0	5'	REC
56-1007-210	4/15/05	14:28	1	---	---	---	---	---	---	---	---	---	0	5'	REC
56-1007-211	4/15/05	10:48	1	---	---	---	---	---	---	---	---	---	0	5'	REC
56-1007-212	4/15/05	15:37	1	---	---	---	---	---	---	---	---	---	0	5'	REC
56-1007-213	4/15/05	15:55	1	---	---	---	---	---	---	---	---	---	0	5'	REC
56-1007-214	4/15/05	15:15	1	---	---	---	---	---	---	---	---	---	0	5'	REC
56-1007-215	4/15/05	16:34	1	---	---	---	---	---	---	---	---	---	0	5'	REC
56-1007-216	4/15/05	16:54	1	---	---	---	---	---	---	---	---	---	0	5'	REC
56-1007-217	4/15/05	17:19	1	---	---	---	---	---	---	---	---	---	0	5'	REC
RECEIVED BY (Signature) _____															
DATE 4/15/05															
COMPANY _____															
RECEIVED BY (Signature) _____															
DATE 4/15/05															
COMPANY _____															
RECEIVED BY (Signature) _____															
DATE _____															
COMPANY _____															
RECEIVED BY (Signature) _____															
DATE _____															
COMPANY _____															

LABORATORY INSTRUCTIONS/COMMENTS		COMPOSITE DESCRIPTION	
SAMPLING COMMENT: Blay 88 Soil Vapor		Soil Vapor	

SAMPLE CONDITION UPON RECEIPT (FOR LABORATORY)	
TEMPERATURE: _____	SAMPLE CONDITION: <input checked="" type="checkbox"/> INTACT <input type="checkbox"/> BROKEN
COOLER SEAL: _____	<input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management



**TETRA TECH**  
1230 Columbus Street, Suite 500  
San Diego, CA 92101 (619) 234-6696

# CHAIN-OF-CUSTODY RECORD

NUMBER

10949

PROJECT NAME		PURCHASE ORDER NO.		ANALYSES REQUIRED										LABORATORY NAME		Project Information Section Do not submit to Laboratory					
PROJECT LOCATION		PROJECT NO.												LABORATORY ID (FOR LABORATORY)		LOCATION		DEPTH		QC	
SAMPLER NAME		AIRBILL NUMBER												50405E				START		END	
PROJECT CONTACT		PROJECT CONTACT PHONE NUMBER																			
SAMPLE ID		DATE COLLECTED		TIME COLLECTED		NO OF CONTAINERS		LEVEL		T		T									
								3 4		T A		T									
86-10087-220	9/16/15	07:58	1															0	5'	RE	
86-10087-221	9/16/15	08:18	1															0	5'	RE	
86-10087-222	9/16/15	08:36	1															0	5'	RE	
86-10087-223	9/16/15	08:51	1															0	5'	RE	
86-10087-224	9/16/15	09:14	1															0	5'	RE	
86-10087-225	9/16/15	09:23	1															0	5'	RE	
86-10087-226	9/16/15	09:50	1															0	5'	RE	
86-10087-227	9/16/15	10:05	1															0	5'	RE	
86-10087-228	9/16/15	10:28	1															0	5'	RE	
86-10087-229	9/16/15	10:47	1															0	5'	RE	

LABORATORY INSTRUCTIONS/COMMENTS			
Bldg. 88			
Soil Vapor			

COMPOSITE DESCRIPTION		SAMPLE CONDITION: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN	
VOC's in Soil Vapor			

RECEIVED BY (Signature)		RECEIVED BY (Signature)	
DATE	TIME	DATE	TIME
9/16/15	10:50		

RECEIVED BY (Signature)		RECEIVED BY (Signature)	
DATE	TIME	DATE	TIME
9/16/15	10:50		

RECEIVED BY (Signature)		RECEIVED BY (Signature)	
DATE	TIME	DATE	TIME
9/16/15	10:50		



**Project Information  
Section  
Do not submit to  
Laboratory**

PURCHASE ORDER NO.		PROJECT LOCATION		PROJECT NO.		ANALYSES REQUIRED		LABORATORY NAME	
DATE COLLECTED		TIME COLLECTED		NO. OF CONTAINER		LEVEL		DEPTH	
DATE COLLECTED		TIME COLLECTED		NO. OF CONTAINER		LEVEL		DEPTH	
DATE COLLECTED		TIME COLLECTED		NO. OF CONTAINER		LEVEL		DEPTH	
50-1007-228	4/6/05	11:05	1	V	0	5'	0	5'	0
50-1007-229	4/6/05	12:14	1	V	0	5'	0	5'	0
50-1007-230	4/6/05	11:42	1	V	0	5'	0	5'	0
50-1007-231	4/6/05	12:02	1	V	0	5'	0	5'	0
50-1007-232	4/6/05	12:14	1	V	0	5'	0	5'	0
50-1007-233	4/6/05	12:14	1	V	0	5'	0	5'	0
50-1007-234	4/6/05	12:58	1	V	0	5'	0	5'	0
50-1007-235	4/6/05	12:14	1	V	0	5'	0	5'	0
50-1007-236	4/6/05	12:34	1	V	0	5'	0	5'	0
50-1007-237	4/6/05	12:54	1	V	0	5'	0	5'	0
50-1007-238	4/6/05	11:13	1	V	0	5'	0	5'	0

REQUISITIONED BY (Signature)		DATE		RECEIVED BY (Signature)		DATE	
COMPANY		TIME		COMPANY		TIME	
[Signature]		4/6/05		[Signature]		4/6/05	
[Signature]		4/6/05		[Signature]		4/6/05	

REQUISITIONED BY (Signature)		DATE		RECEIVED BY (Signature)		DATE	
COMPANY		TIME		COMPANY		TIME	
[Signature]		4/6/05		[Signature]		4/6/05	
[Signature]		4/6/05		[Signature]		4/6/05	

REQUISITIONED BY (Signature)		DATE		RECEIVED BY (Signature)		DATE	
COMPANY		TIME		COMPANY		TIME	
[Signature]		4/6/05		[Signature]		4/6/05	
[Signature]		4/6/05		[Signature]		4/6/05	

REQUISITIONED BY (Signature)		DATE		RECEIVED BY (Signature)		DATE	
COMPANY		TIME		COMPANY		TIME	
[Signature]		4/6/05		[Signature]		4/6/05	
[Signature]		4/6/05		[Signature]		4/6/05	

REQUISITIONED BY (Signature)		DATE		RECEIVED BY (Signature)		DATE	
COMPANY		TIME		COMPANY		TIME	
[Signature]		4/6/05		[Signature]		4/6/05	
[Signature]		4/6/05		[Signature]		4/6/05	

REQUISITIONED BY (Signature)		DATE		RECEIVED BY (Signature)		DATE	
COMPANY		TIME		COMPANY		TIME	
[Signature]		4/6/05		[Signature]		4/6/05	
[Signature]		4/6/05		[Signature]		4/6/05	

REQUISITIONED BY (Signature)		DATE		RECEIVED BY (Signature)		DATE	
COMPANY		TIME		COMPANY		TIME	
[Signature]		4/6/05		[Signature]		4/6/05	
[Signature]		4/6/05		[Signature]		4/6/05	

REQUISITIONED BY (Signature)		DATE		RECEIVED BY (Signature)		DATE	
COMPANY		TIME		COMPANY		TIME	
[Signature]		4/6/05		[Signature]		4/6/05	
[Signature]		4/6/05		[Signature]		4/6/05	

REQUISITIONED BY (Signature)		DATE		RECEIVED BY (Signature)		DATE	
COMPANY		TIME		COMPANY		TIME	
[Signature]		4/6/05		[Signature]		4/6/05	
[Signature]		4/6/05		[Signature]		4/6/05	

REQUISITIONED BY (Signature)		DATE		RECEIVED BY (Signature)		DATE	
COMPANY		TIME		COMPANY		TIME	
[Signature]		4/6/05		[Signature]		4/6/05	
[Signature]		4/6/05		[Signature]		4/6/05	

REQUISITIONED BY (Signature)		DATE		RECEIVED BY (Signature)		DATE	
COMPANY		TIME		COMPANY		TIME	
[Signature]		4/6/05		[Signature]		4/6/05	
[Signature]		4/6/05					

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management

## NUMBER 005555

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management



**TETRA TECH**  
1330 Colmaire Street, Suite 500  
San Diego, CA 92101 (619) 254-8996

# CHAIN-OF-CUSTODY RECORD

NUMBER

10348

PROJECT NAME				PURCHASE ORDER NO				ANALYSES REQUIRED										LABORATORY NAME		Project Information Section Do not submit to Laboratory							
PROJECT LOCATION				PROJECT NO														LABORATORY ID (FOR LABORATORY)		LOCATION		DEPTH START END		QC			
SAMPLER NAME				AIRBELL NUMBER														50405E									
PROJECT CONTACT				PROJECT CONTACT PHONE NUMBER																							
SAMPLE ID		DATE COLLECTED		TIME COLLECTED		NO OF CONTAINER		LEVEL 3 4		T T A T		T T A T															
86-0009-244		4/1/05		8:02		1		1		V		V						56-08-41		0 5'		R <sub>6</sub>					
86-0009-245		4/1/05		8:19		1		1		V		V						56-08-42		0 5'		R <sub>6</sub>					
86-0009-246		4/1/05		8:37		1		1		V		V						56-08-43		0 5'		R <sub>6</sub>					
86-0009-247		4/1/05		8:57		1		1		V		V						56-08-44		0 5'		R <sub>6</sub>					
86-0009-248		4/1/05		9:17		1		1		V		V						56-08-45		0 5'		R <sub>6</sub>					
86-0009-249		4/1/05		9:36		1		1		V		V						56-08-46		0 5'		R <sub>6</sub>					
86-0009-250		4/1/05		9:57		1		1		V		V						56-08-47		0 5'		R <sub>6</sub>					
86-0009-251		4/1/05		10:14		1		1		V		V						56-08-48		0 5'		R <sub>6</sub>					
END																											
RELINQUISHED BY (Signature)				DATE				RECEIVED BY (Signature)				DATE				LABORATORY INSTRUCTIONS/COMMENTS										SAMPLING COMMENT:	
COMPANY				TIME				COMPANY				TIME														Bldg. 88	
RELINQUISHED BY (Signature)				DATE				RECEIVED BY (Signature)				DATE														SD. Vapen	
COMPANY				TIME				COMPANY				TIME															
RELINQUISHED BY (Signature)				DATE				RECEIVED BY (Signature)				DATE															
COMPANY				TIME				COMPANY				TIME															

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management



27 April 2005

Ms. Lisa Bienkowski  
Tetra Tech  
1940 East Deere Avenue, Suite 200  
Santa Ana, CA 92705

**SUBJECT: DATA REPORT - TetraTech Project #1990-0860  
Moffett Airfield, Mountain View, California**

**TEG Project # 50405E**

Ms. Bienkowski:

Please find enclosed a data report for the samples analyzed from the above referenced project for Tetra Tech. The samples were analyzed on site in TEG's mobile laboratory. TEG conducted a total of 54 analyses on 54 soil vapor samples.

- 54 analyses on soil vapors for the volatile organic hydrocarbons vinyl chloride, cis-1,2-dichloroethene, trichloroethene (TCE), and tetrachloroethene (PCE) by EPA method 8260B.

The results of the analyses are summarized in the enclosed tables. Applicable detection limits and calibration data are included in the tables.

1,1 difluoroethane was used as a leak check compound around the sampling train during the soil vapor sampling. No 1,1 difluoroethane was detected in any of the vapor samples reported at or above the DTSC recommended leak check compound reporting limit of 10 µg/L of vapor.

TEG appreciates the opportunity to have provided analytical services to Tetra Tech on this project. If you have any further questions relating to these data or report, please do not hesitate to contact us.

Sincerely,

A handwritten signature in black ink, appearing to read "Mark Jerpak", written over a horizontal line.

Mark Jerpak  
Director, TEG-Northern California



Tetra Tech Project #1990-0860  
Moffett Airfield - Mountain View, California

TEG Project #50405E

EPA METHOD 8260B VOC ANALYSES OF SOIL VAPOR in parts per billion by volume (ppbV)

SAMPLE NUMBER:	Method Blank	Method Blank	Method Blank	86-WOPT 200A	86-WOPT 200B	86-WOPT 200C	86-WOPT 201
PURGE VOLUME:				1	3	7	7
SAMPLE DEPTH (feet):				5.0	5.0	5.0	5.0
COLLECTION DATE:	4/05/05	4/06/05	4/07/05	4/05/05	4/05/05	4/05/05	4/05/05
COLLECTION TIME:	08:05	07:35	07:40	09:08	09:40	10:00	10:35
DILUTION FACTOR:	1	1	1	1	1	1	1
RL							
Vinyl Chloride	390	nd	nd	nd	nd	nd	nd
cis-1,2-Dichloroethene	250	nd	nd	nd	420	400	4700
Trichloroethene	180	nd	nd	nd	1300	1600	6200
Tetrachloroethene	140	nd	nd	nd	nd	nd	750
Surrogate Recovery (DBFM)	103%	101%	105%	103%	101%	97%	102%
Surrogate Recovery (1,2-DCA-d4)	103%	110%	119%	104%	108%	105%	109%
Surrogate Recovery (Toluene-d8)	98%	95%	96%	96%	96%	95%	98%

'RL' REPORTING LIMIT

'nd' NOT DETECTED AT LISTED REPORTING LIMITS

ANALYSES PERFORMED IN TEG-Northern California's DHS CERTIFIED LAB

ANALYSES PERFORMED BY: Ms. Christina Leonard

DATA REVIEWED BY: Mr. Henry Wilkinson

page 1



**Tetra Tech Project #1990-0860**  
**Moffett Airfield - Mountain View, California**

TEG Project #50405E

**EPA METHOD 8260B VOC ANALYSES OF SOIL VAPOR in parts per billion by volume (ppbV)**

SAMPLE NUMBER:	86-WOPT 202	86-WOPT 203	86-WOPT 204	86-WOPT 205	86-WOPT 206	86-WOPT 207	86-WOPT 208
PURGE VOLUME:	7	7	7	7	7	7	7
SAMPLE DEPTH (feet):	5.0	5.0	5.0	5.0	5.0	5.0	5.0
COLLECTION DATE:	4/05/05	4/05/05	4/05/05	4/05/05	4/05/05	4/05/05	4/05/05
COLLECTION TIME:	11:08	11:32	11:52	12:11	12:32	13:24	13:47
DILUTION FACTOR:	1	1	1	1	1	1	1
RL							
Vinyl Chloride	390	nd	nd	nd	nd	nd	nd
cis-1,2-Dichloroethene	250	5900	1300	1100	nd	nd	250
Trichloroethene	180	1100	1500	1100	nd	480	380
Tetrachloroethene	140	900	11000	1300	nd	nd	nd
Surrogate Recovery (DBFM)	104%	109%	117%	111%	110%	111%	106%
Surrogate Recovery (1,2-DCA-d4)	109%	112%	128%	118%	121%	116%	119%
Surrogate Recovery (Toluene-d8)	94%	95%	98%	94%	95%	91%	95%

'RL' REPORTING LIMIT

'nd' NOT DETECTED AT LISTED REPORTING LIMITS

ANALYSES PERFORMED IN TEG-Northern California's DHS CERTIFIED LAB

ANALYSES PERFORMED BY: Ms. Christina Leonard

DATA REVIEWED BY: Mr. Henry Wilkinson

page 2



**Tetra Tech Project #1990-0860**  
**Moffett Airfield - Mountain View, California**

TEG Project #50405E

**EPA METHOD 8260B VOC ANALYSES OF SOIL VAPOR in parts per billion by volume (ppbV)**

SAMPLE NUMBER:	86-WOPT 209	86-WOPT 210	86-WOPT 211	86-WOPT 212	86-WOPT 213	86-WOPT 214	86-WOPT 215
PURGE VOLUME:	7	7	7	7	7	7	7
SAMPLE DEPTH (feet):	5.0	5.0	5.0	5.0	5.0	5.0	5.0
COLLECTION DATE:	4/05/05	4/05/05	4/05/05	4/05/05	4/05/05	4/05/05	4/05/05
COLLECTION TIME:	14:08	14:28	14:48	15:37	15:55	16:15	16:34
DILUTION FACTOR:	1	1	1	1	1	1	1
<b>RL</b>							
Vinyl Chloride	390	nd	nd	nd	nd	nd	nd
cis-1,2-Dichloroethene	250	nd	960	890	370	nd	250
Trichloroethene	180	530	7700	5500	1800	440	1100
Tetrachloroethene	140	nd	nd	nd	nd	nd	nd
Surrogate Recovery (DBFM)	103%	103%	104%	110%	87%	93%	115%
Surrogate Recovery (1,2-DCA-d4)	106%	109%	110%	117%	96%	100%	123%
Surrogate Recovery (Toluene-d8)	90%	90%	90%	92%	87%	88%	97%

**'RL' REPORTING LIMIT**

**'nd' NOT DETECTED AT LISTED REPORTING LIMITS**

**ANALYSES PERFORMED IN TEG-Northern California's DHS CERTIFIED LAB**

**ANALYSES PERFORMED BY: Ms. Christine Leonard**

**DATA REVIEWED BY: Mr. Henry Wilkinson**

page 3



Tetra Tech Project #1990-0860  
Moffett Airfield - Mountain View, California

TEG Project #50405E

EPA METHOD 8260B VOC ANALYSES OF SOIL VAPOR in parts per billion by volume (ppbV)

SAMPLE NUMBER:	86-WOPT 216	86-WOPT 217	86-WOPT 218	86-WOPT 219	86-WOPT 220	86-WOPT 221	86-WOPT 222
PURGE VOLUME:	7	7	7	7	7	7	7
SAMPLE DEPTH (feet):	5.0	5.0	5.0	5.0	5.0	5.0	5.0
COLLECTION DATE:	4/05/05	4/05/05	4/06/05	4/06/05	4/06/05	4/06/05	4/06/05
COLLECTION TIME:	16:54	17:13	07:58	08:18	08:35	08:51	09:14
DILUTION FACTOR:	1	1	1	1	1	1	1
<hr/>							
Vinyl Chloride	390	nd	nd	nd	nd	nd	nd
cis-1,2-Dichloroethene	250	620	690	420	400	400	570
Trichloroethene	180	1800	3100	1700	1700	2600	1800
Tetrachloroethene	140	nd	nd	nd	nd	nd	nd
<hr/>							
Surrogate Recovery (DBFM)	108%	102%	96%	91%	94%	85%	90%
Surrogate Recovery (1,2-DCA-d4)	121%	114%	95%	99%	99%	88%	84%
Surrogate Recovery (Toluene-d8)	93%	90%	96%	93%	97%	90%	86%

'RL' REPORTING LIMIT

'nd' NOT DETECTED AT LISTED REPORTING LIMITS

ANALYSES PERFORMED IN TEG-Northern California's OHS CERTIFIED LAB

ANALYSES PERFORMED BY: Ms. Christine Leonard

DATA REVIEWED BY: Mr. Henry Wilkinson

page 4





Tetra Tech Project #1990-0860  
Moffett Airfield - Mountain View, California

TEG Project #50405E

EPA METHOD 8260B VOC ANALYSES OF SOIL VAPOR in parts per billion by volume (ppbV)

SAMPLE NUMBER:	86-WOPT 223	86-WOPT 224	86-WOPT 225	86-WOPT 226	86-WOPT 227	86-WOPT 228	86-WOPT 229
PURGE VOLUME:	7	7	7	7	7	7	7
SAMPLE DEPTH (feet):	5.0	5.0	5.0	5.0	5.0	5.0	5.0
COLLECTION DATE:	4/06/05	4/06/05	4/06/05	4/06/05	4/06/05	4/06/05	4/06/05
COLLECTION TIME:	09:31	09:50	10:09	10:28	10:45	11:05	11:24
DILUTION FACTOR:	1	1	1	1	1	1	1
<hr/>							
Vinyl Chloride	390	nd	nd	nd	nd	nd	nd
cis-1,2-Dichloroethene	250	740	1000	690	1100	490	1000
Trichloroethene	180	2000	2600	880	950	400	1300
Tetrachloroethene	140	nd	200	140	330	270	400
<hr/>							
Surrogate Recovery (DBFM)	82%	95%	80%	93%	90%	92%	96%
Surrogate Recovery (1,2-DCA-d4)	88%	94%	82%	96%	97%	95%	99%
Surrogate Recovery (Toluene-d8)	89%	91%	83%	84%	86%	82%	85%

'RL' REPORTING LIMIT

'nd' NOT DETECTED AT LISTED REPORTING LIMITS

ANALYSES PERFORMED IN TEG-Northern California's DHS CERTIFIED LAB

ANALYSES PERFORMED BY: Ms. Christina Leonard

DATA REVIEWED BY: Mr. Henry Wilkinson

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**Tetra Tech Project #1990-0860**  
**Moffett Airfield - Mountain View, California**

TEG Project #50405E

**EPA METHOD 8260B VOC ANALYSES OF SOIL VAPOR in parts per billion by volume (ppbV)**

SAMPLE NUMBER:	86-WOPT 230	86-WOPT 231	86-WOPT 232	86-WOPT 233	86-WOPT 234	86-WOPT 235	86-WOPT 236
PURGE VOLUME:	7	7	7	7	7	7	7
SAMPLE DEPTH (feet):	5.0	5.0	5.0	5.0	5.0	5.0	5.0
COLLECTION DATE:	4/06/05	4/06/05	4/06/05	4/06/05	4/06/05	4/06/05	4/06/05
COLLECTION TIME:	11:42	12:02	12:19	12:38	12:58	13:14	13:34
DILUTION FACTOR:	1	1	1	1	1	1	1
RL							
Vinyl Chloride	390	nd	nd	nd	nd	nd	nd
cis-1,2-Dichloroethene	250	490	1500	1200	940	1500	1300
Trichloroethene	180	1100	2400	4900	4200	9900	4200
Tetrachloroethene	140	230	1200	720	nd	900	490
							360
Surrogate Recovery (DBFM)	107%	91%	102%	95%	110%	107%	106%
Surrogate Recovery (1,2-DCA-d4)	122%	102%	107%	98%	117%	109%	115%
Surrogate Recovery (Toluene-d8)	95%	82%	87%	91%	95%	96%	95%

'RL' REPORTING LIMIT

'nd' NOT DETECTED AT LISTED REPORTING LIMITS

ANALYSES PERFORMED IN TEG-Northern California's DHS CERTIFIED LAB

ANALYSES PERFORMED BY: Ms. Christine Leonard

DATA REVIEWED BY: Mr. Henry Wilkinson

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**Tetra Tech Project #1990-0860**  
**Moffett Airfield - Mountain View, California**

TEG Project #50405E

EPA METHOD 8260B VOC ANALYSES OF SOIL VAPOR in parts per billion by volume (ppbV)

SAMPLE NUMBER:	86-WOPT 237	86-WOPT 238	86-WOPT 239	86-WOPT 240	86-WOPT 241	86-WOPT 242	86-WOPT 243
PURGE VOLUME:	7	7	7	7	7	7	7
SAMPLE DEPTH (feet):	5.0	5.0	5.0	5.0	5.0	5.0	5.0
COLLECTION DATE:	4/06/05	4/06/05	4/06/05	4/06/05	4/06/05	4/06/05	4/06/05
COLLECTION TIME:	13:54	14:13	14:35	14:55	15:17	15:35	15:55
DILUTION FACTOR:	1	1	1	1	1	1	1
RL							
Vinyl Chloride	390	nd	nd	nd	nd	nd	nd
cis-1,2-Dichloroethene	250	1900	590	3200	3700	940	2100
Trichloroethene	180	4200	440	3800	4400	1100	2900
Tetrachloroethene	140	2000	nd	720	810	1000	670
Surrogate Recovery (DBFM)	116%	114%	110%	116%	111%	122%	105%
Surrogate Recovery (1,2-DCA-d4)	126%	119%	125%	119%	124%	123%	116%
Surrogate Recovery (Toluene-d8)	97%	93%	94%	96%	95%	99%	92%

'RL' REPORTING LIMIT

'nd' NOT DETECTED AT LISTED REPORTING LIMITS

ANALYSES PERFORMED IN TEG-Northern California's DHS CERTIFIED LAB

ANALYSES PERFORMED BY: Ms. Christina Leonard

DATA REVIEWED BY: Mr. Henry Wilkinson

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Tetra Tech Project #1990-0860  
Moffett Airfield - Mountain View, California

TEG Project #50405E

EPA METHOD 8260B VOC ANALYSES OF SOIL VAPOR in parts per billion by volume (ppbV)

SAMPLE NUMBER:	86-WOPT 244	86-WOPT 245	86-WOPT 246	86-WOPT 247	86-WOPT 248	86-WOPT 249	86-WOPT 250
PURGE VOLUME:	7	7	7	7	7	7	7
SAMPLE DEPTH (feet):	5.0	5.0	5.0	5.0	5.0	5.0	5.0
COLLECTION DATE:	4/07/05	4/07/05	4/07/05	4/07/05	4/07/05	4/07/05	4/07/05
COLLECTION TIME:	08:02	08:19	08:37	08:57	09:17	09:36	09:57
DILUTION FACTOR:	1	1	1	1	1	1	1
RL							
Vinyl Chloride	390	nd	nd	nd	nd	nd	nd
cis-1,2-Dichloroethene	250	6400	6400	540	nd	nd	670
Trichloroethene	180	1300	2700	700	nd	nd	2400
Tetrachloroethene	140	610	5900	1200	nd	nd	nd
Surrogate Recovery (DBFM)	82%	92%	88%	87%	94%	104%	109%
Surrogate Recovery (1,2-DCA-d4)	85%	91%	89%	86%	97%	108%	116%
Surrogate Recovery (Toluene-d8)	90%	93%	90%	89%	90%	93%	97%

'RL' REPORTING LIMIT

'nd' NOT DETECTED AT LISTED REPORTING LIMITS

ANALYSES PERFORMED IN TEG-Northern California's DHS CERTIFIED LAB

ANALYSES PERFORMED BY: Ms. Christina Leonard

DATA REVIEWED BY: Mr. Henry Wilkinson

page 8



**Tetra Tech Project #1990-0860**  
**Moffett Airfield - Mountain View, California**

TEG Project #50405E

**EPA METHOD 8260B VOC ANALYSES OF SOIL VAPOR in parts per billion by volume (ppbV)**

SAMPLE NUMBER: 86-WDPT  
251

PURGE VOLUME: 7

SAMPLE DEPTH (feet): 5.0

COLLECTION DATE: 4/07/05

COLLECTION TIME: 10:14

DILUTION FACTOR: 1  
RL

Vinyl Chloride	390	nd
cis-1,2-Dichloroethene	250	nd
Trichloroethene	180	nd
Tetrachloroethene	140	nd

Surrogate Recovery (DBFM)	110%
Surrogate Recovery (1,2-DCA-d4)	115%
Surrogate Recovery (Toluene-d8)	94%

**'RL' REPORTING LIMIT**

**'nd' NOT DETECTED AT LISTED REPORTING LIMITS**

**ANALYSES PERFORMED IN TEG-Northern California's DHS CERTIFIED LAB**

**ANALYSES PERFORMED BY: Ms. Christine Leonard**

**DATA REVIEWED BY: Mr. Henry Wilkinson**

page 9



*Tetra Tech Project #1990-0860  
Moffett Airfield - Mountain View, California*

TEG Project #50405E

CALIBRATION STANDARDS - 5-Point Calibration / LCS

Instrument: Agilent 5973N MSD

COMPOUND	INITIAL CALIBRATION		LCS	
	RF	%RSD	RF	%DIFF
Vinyl Chloride	0.358	11.8%	0.372	3.9%
cis-1,2-Dichloroethene	0.256	11.2%	0.249	2.7%
Trichloroethene	0.293	6.9%	0.274	6.5%
Tetrachloroethene	0.330	8.3%	0.358	8.5%
ACCEPTABLE LIMITS:		20.0%	20.0%	

ANALYSES PERFORMED IN TEG-Northern California's DHS CERTIFIED LAB

page 10



*Tetra Tech Project #1990-0860  
Moffett Airfield - Mountain View, California*

TEG Project #50405E

Continuing Calibration

Instrument: Agilent 5973N MSD

COMPOUND	INITIAL RF	4/05/05		4/06/05		4/07/05..	
		Daily Midpoint RF	%DIFF	Daily Midpoint RF	%DIFF	Daily Midpoint RF	%DIFF
Vinyl Chloride	0.358	0.310	13.4%	0.293	18.2%	0.331	7.5%
cis-1,2-Dichloroethene	0.256	0.235	8.2%	0.246	3.9%	0.236	7.8%
Trichloroethene	0.293	0.283	3.4%	0.298	1.7%	0.277	5.5%
Tetrachloroethene	0.330	0.353	7.0%	0.373	13.0%	0.339	2.7%

ANALYSES PERFORMED IN TEG-Northern California's DHS CERTIFIED LAB

page 11





Data Validation Package  
for  
EPA METHOD 8260B  
Volatile Organic Compounds

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## Case Narrative

ARF: 47040

Project: 1990.0860 WATS Bldg 88 Moffett Airfield

State Certification Number: CA1312

Results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

### Sample Receipt Information:

The sample group was received April 6, 2005, at 4.0°C. The samples were assigned Analytical Request Form (ARF) number 47040. The sample numbers and requested analyses were compared to the chains of custody. The TOC analysis was subcontracted to Columbia Analytical Laboratory. No exception was noted.

Sample Table

CLIENT ID	APPL ID	Matrix	Date Sampled	Date Received
86-WOPT-300	AX16904	WATER	04/06/05	04/06/05
86-WOPT-301	AX16905	SOIL	04/06/05	04/06/05
86-WOPT-305	AX16906	SOIL	04/06/05	04/06/05
86-WOPT-306	AX16907	SOIL	04/06/05	04/06/05
86-WOPT-307	AX16908	SOIL	04/06/05	04/06/05
86-WOPT-308	AX16909	SOIL	04/06/05	04/06/05
86-WOPT-309	AX16910	WATER	04/06/05	04/06/05

# **EPA Method 8260B**

## **Volatile Organic Analysis**

### **Sample Preparation:**

The samples were purged according to EPA method 5030B. All holding times were met.

### **Sample Analysis Information:**

The samples were analyzed according to the method using a Hewlett Packard Gas Chromatograph with a mass spectrometer detector. Samples 86-WOPT-301, 86-WOPT-305, 86-WOPT-306 and 86-WOPT-308 required dilutions. These encores were extruded into methanol for the dilutions. Both the undiluted and diluted results are reported.

### **Quality Control/Assurance**

#### **Calibrations:**

Initial and continuing calibrations were performed according to the method. For the continuing calibration performed on Chico file ID: 0406C12S.D, Chloromethane had a 21%D, and Acetone had a 26%D. For the continuing calibration performed on Sweetpea file ID: 0406S21W.D, Chloromethane had a 23%D. All other calibration criteria were met.

#### **Blanks:**

No target analyte was detected above the reporting limits in the method blanks.

#### **Spikes:**

Laboratory Control Spikes (LCS) were used for quality assurance. A second-source standard was used for the LCS. All spike and second-source criteria were met.

No sample was designated by the client for an MS/MSD analysis.

#### **Surrogates**

All surrogate recoveries were within control limits.

#### **Tuning:**

The instrument was tuned using BFB. All method criteria were met.

#### **Internal Standards**

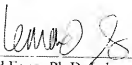
The internal standard area counts were compared to the mid-point of the initial calibration according to method 8260. All method criteria were met.

### **Summary:**

No additional problem was encountered. All data were acceptable.

## CERTIFICATION

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the hard copy has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

 4/29/15  
\_\_\_\_\_  
Leonard Fong, Ph.D./Laboratory Director / Date

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-300

Sample Collection Date: 4/6/05

ARF: 47040

APPL ID: AX16904

QCG: S86TTW-050406B-85416

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/7/05	4/7/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/7/05	4/7/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/7/05	4/7/05
EPA 8260B	1,1-Dichloroethane	Not detected	0.5	0.19	ug/L	4/7/05	4/7/05
EPA 8260B	1,1-Dichloroethene	Not detected	0.5	0.30	ug/L	4/7/05	4/7/05
EPA 8260B	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/7/05	4/7/05
EPA 8260B	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/7/05	4/7/05
EPA 8260B	2-Butanone	Not detected	5	0.6	ug/L	4/7/05	4/7/05
EPA 8260B	2-Hexanone	Not detected	5	0.92	ug/L	4/7/05	4/7/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/7/05	4/7/05
EPA 8260B	Acetone	1.7 J	5	0.95	ug/L	4/7/05	4/7/05
EPA 8260B	Benzene	Not detected	0.5	0.16	ug/L	4/7/05	4/7/05
EPA 8260B	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/7/05	4/7/05
EPA 8260B	Bromoform	Not detected	0.5	0.14	ug/L	4/7/05	4/7/05
EPA 8260B	Bromomethane	Not detected	1	0.24	ug/L	4/7/05	4/7/05
EPA 8260B	Carbon disulfide	Not detected	0.5	0.2	ug/L	4/7/05	4/7/05
EPA 8260B	Carbon tetrachloride	Not detected	0.5	0.10	ug/L	4/7/05	4/7/05
EPA 8260B	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/7/05	4/7/05
EPA 8260B	Chloroethane	Not detected	0.5	0.21	ug/L	4/7/05	4/7/05
EPA 8260B	Chloroform	Not detected	0.5	0.16	ug/L	4/7/05	4/7/05
EPA 8260B	Chloromethane	Not detected	0.5	0.31	ug/L	4/7/05	4/7/05
EPA 8260B	cis-1,2-Dichloroethene	Not detected	0.5	0.16	ug/L	4/7/05	4/7/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/7/05	4/7/05
EPA 8260B	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/7/05	4/7/05
EPA 8260B	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/7/05	4/7/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/7/05	4/7/05
EPA 8260B	Methylene chloride	Not detected	5	0.35	ug/L	4/7/05	4/7/05
EPA 8260B	Styrene	Not detected	0.5	0.25	ug/L	4/7/05	4/7/05
EPA 8260B	Tetrachloroethene	Not detected	0.5	0.15	ug/L	4/7/05	4/7/05
EPA 8260B	Toluene	Not detected	0.5	0.17	ug/L	4/7/05	4/7/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	0.5	0.19	ug/L	4/7/05	4/7/05

J = Estimated value, below quantitation limit.

Run #: 0406S35  
Instrument: Sweetpea  
Sequence: S050405  
Dilution Factor: 1  
Initials: LF

Printed: 4/7/05 10:39:12 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-300

Sample Collection Date: 4/6/05

ARF: 47040

APPL ID: AX16904

QC: \$86TTW-050406B-85416

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/7/05	4/7/05
EPA 8260B	Trichloroethene	Not detected	0.5	0.16	ug/L	4/7/05	4/7/05
EPA 8260B	Vinyl Acetate	Not detected	5	0.31	ug/L	4/7/05	4/7/05
EPA 8260B	Vinyl chloride	Not detected	0.5	0.23	ug/L	4/7/05	4/7/05
EPA 8260B	Xylenes	Not detected	1.5	0.19	ug/L	4/7/05	4/7/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	109	62-139		%	4/7/05	4/7/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	105	75-125		%	4/7/05	4/7/05
EPA 8260B	Surrogate recovery: Toluene-d8	101	75-125		%	4/7/05	4/7/05

J = Estimated value, below quantitation limit.

Run #: 0406S35  
Instrument: Sweetpea  
Sequence: S050405  
Dilution Factor: 1  
Initials: LF

Printed 4/7/05 10:39:13 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.0860 WATS Bldg 88 Moffett Airfield

ARF: 47040

Sample ID: 86-WOPT-301

APPL ID: AX16905

Sample Collection Date: 4/6/05

QCQ: \$86TTS-050406AC-85406

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 14.3 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethene	Not detected	6	0.95	ug/Kg	4/7/05	4/7/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.4	ug/Kg	4/7/05	4/7/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.56	ug/Kg	4/7/05	4/7/05
EPA 8260B	1,1-Dichloroethane	Not detected	6	1.3	ug/Kg	4/7/05	4/7/05
EPA 8260B	1,1-Dichloroethene	3.8 J	6	0.92	ug/Kg	4/7/05	4/7/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.84	ug/Kg	4/7/05	4/7/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.72	ug/Kg	4/7/05	4/7/05
EPA 8260B	2-Butanone	Not detected	58	0.83	ug/Kg	4/7/05	4/7/05
EPA 8260B	2-Hexanone	Not detected	58	0.19	ug/Kg	4/7/05	4/7/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	58	1.1	ug/Kg	4/7/05	4/7/05
EPA 8260B	Acetone	11 B J	120	3.3	ug/Kg	4/7/05	4/7/05
EPA 8260B	Benzene	Not detected	6	0.74	ug/Kg	4/7/05	4/7/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.81	ug/Kg	4/7/05	4/7/05
EPA 8260B	Bromoform	Not detected	6	0.93	ug/Kg	4/7/05	4/7/05
EPA 8260B	Bromomethane	Not detected	12	1.9	ug/Kg	4/7/05	4/7/05
EPA 8260B	Carbon disulfide	Not detected	6	1.3	ug/Kg	4/7/05	4/7/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.93	ug/Kg	4/7/05	4/7/05
EPA 8260B	Chlorobenzene	Not detected	6	0.57	ug/Kg	4/7/05	4/7/05
EPA 8260B	Chloroethane	Not detected	6	1.8	ug/Kg	4/7/05	4/7/05
EPA 8260B	Chloroform	Not detected	6	1.7	ug/Kg	4/7/05	4/7/05
EPA 8260B	Chloromethane	Not detected	6	2.1	ug/Kg	4/7/05	4/7/05
EPA 8260B	cis-1,2-Dichloroethene	16	6	1.2	ug/Kg	4/7/05	4/7/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.55	ug/Kg	4/7/05	4/7/05
EPA 8260B	Dibromochloromethane	Not detected	6	0.99	ug/Kg	4/7/05	4/7/05
EPA 8260B	Ethylbenzene	Not detected	6	0.75	ug/Kg	4/7/05	4/7/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.0	ug/Kg	4/7/05	4/7/05
EPA 8260B	Methylene chloride	Not detected	53	5.3	ug/Kg	4/7/05	4/7/05
EPA 8260B	Styrene	Not detected	6	0.81	ug/Kg	4/7/05	4/7/05
EPA 8260B	Tetrachloroethene	10	6	0.63	ug/Kg	4/7/05	4/7/05
EPA 8260B	Toluene	Not detected	6	0.76	ug/Kg	4/7/05	4/7/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.6	ug/Kg	4/7/05	4/7/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0406C19  
Instrument: Chico  
Sequence: C050406  
Dilution Factor: 1  
Initials: LF

Printed: 4/7/05 10:55:18 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.0890 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-301

Sample Collection Date: 4/6/05

ARF: 47040

APPL ID: AX16905

QCG: \$86TTS-050406AC-85406

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.50	ug/Kg	4/7/05	4/7/05
EPA 8260B	Trichloroethene	450 E	6	0.83	ug/Kg	4/7/05	4/7/05
EPA 8260B	Vinyl Acetate	Not detected	58	1.2	ug/Kg	4/7/05	4/7/05
EPA 8260B	Vinyl chloride	Not detected	6	2.0	ug/Kg	4/7/05	4/7/05
EPA 8260B	Xylenes	Not detected	18	0.79	ug/Kg	4/7/05	4/7/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	105	52-149		%	4/7/05	4/7/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	101	65-135		%	4/7/05	4/7/05
EPA 8260B	Surrogate recovery: Toluene-d6	100	65-135		%	4/7/05	4/7/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.  
B = The analyte was found in a method blank, as well as in the sample.

Run #: 0406C19  
Instrument: Chico  
Sequence: C050406  
Dilution Factor: 1  
Initials: LF

Printed: 4/7/05 10:55:19 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.0860 WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-301**

Sample Collection Date: 4/6/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47040

**APPL ID: AX16905**

QCG: \$86TTD-050407BN-85456

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 14.3 Percent Moisture.)							
EPA 8260B-	Trichloroethene	190	29	9.3	ug/Kg	4/7/05	4/7/05
EPA 8260B-	Surrogate recovery: 1,2-Dichloroethane	91.1	52-149		%	4/7/05	4/7/05
EPA 8260B-	Surrogate recovery: 4-Bromofluorobenz	93.1	65-135		%	4/7/05	4/7/05
EPA 8260B-	Surrogate recovery: Toluene-d8	86.3	65-135		%	4/7/05	4/7/05

Run #: 0407N06  
Instrument: Neo  
Sequence: N050405  
Dilution Factor: 50  
Initials: LF

Printed: 4/12/05 5:11:05 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech Fw, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-305

Sample Collection Date: 4/6/05

ARF: 47040

APPL ID: AX16906

QCQ: \$86TTS-050406AC-85406

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 15.2 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	0.96	ug/Kg	4/7/05	4/7/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.5	ug/Kg	4/7/05	4/7/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.57	ug/Kg	4/7/05	4/7/05
EPA 8260B	1,1-Dichloroethane	Not detected	6	1.3	ug/Kg	4/7/05	4/7/05
EPA 8260B	1,1-Dichloroethene	1.1 J	6	0.93	ug/Kg	4/7/05	4/7/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.85	ug/Kg	4/7/05	4/7/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.73	ug/Kg	4/7/05	4/7/05
EPA 8260B	2-Butanone	Not detected	59	0.84	ug/Kg	4/7/05	4/7/05
EPA 8260B	2-Hexanone	Not detected	59	0.19	ug/Kg	4/7/05	4/7/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	59	1.1	ug/Kg	4/7/05	4/7/05
EPA 8260B	Acetone	9.1 B J	120	3.3	ug/Kg	4/7/05	4/7/05
EPA 8260B	Benzene	Not detected	6	0.74	ug/Kg	4/7/05	4/7/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.81	ug/Kg	4/7/05	4/7/05
EPA 8260B	Bromoform	Not detected	6	0.94	ug/Kg	4/7/05	4/7/05
EPA 8260B	Bromomethane	Not detected	12	1.9	ug/Kg	4/7/05	4/7/05
EPA 8260B	Carbon disulfide	Not detected	6	1.3	ug/Kg	4/7/05	4/7/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.94	ug/Kg	4/7/05	4/7/05
EPA 8260B	Chlorobenzene	Not detected	6	0.58	ug/Kg	4/7/05	4/7/05
EPA 8260B	Chloroethane	Not detected	6	1.8	ug/Kg	4/7/05	4/7/05
EPA 8260B	Chloroform	Not detected	6	1.7	ug/Kg	4/7/05	4/7/05
EPA 8260B	Chloromethane	Not detected	6	2.1	ug/Kg	4/7/05	4/7/05
EPA 8260B	cis-1,2-Dichloroethene	20	6	1.3	ug/Kg	4/7/05	4/7/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.55	ug/Kg	4/7/05	4/7/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.0	ug/Kg	4/7/05	4/7/05
EPA 8260B	Ethylbenzene	Not detected	6	0.75	ug/Kg	4/7/05	4/7/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.0	ug/Kg	4/7/05	4/7/05
EPA 8260B	Methylene chloride	Not detected	59	5.4	ug/Kg	4/7/05	4/7/05
EPA 8260B	Styrene	Not detected	6	0.81	ug/Kg	4/7/05	4/7/05
EPA 8260B	Tetrachloroethene	4.6 J	6	0.64	ug/Kg	4/7/05	4/7/05
EPA 8260B	Toluene	Not detected	6	0.77	ug/Kg	4/7/05	4/7/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.6	ug/Kg	4/7/05	4/7/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.  
B = The analyte was found in a method blank, as well as in the sample.

Run #: 0406C20  
Instrument: Chico  
Sequence: C050406  
Dilution Factor: 1  
Initials: LF

Printed: 4/7/05 10:55:19 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-305

Sample Collection Date: 4/6/05

ARF: 47040

APPL ID: AX16906

QCG: \$86TTS-050406AC-85406

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.51	ug/Kg	4/7/05	4/7/05
EPA 8260B	Trichloroethene	250 E	6	0.84	ug/Kg	4/7/05	4/7/05
EPA 8260B	Vinyl Acetate	Not detected	59	1.2	ug/Kg	4/7/05	4/7/05
EPA 8260B	Vinyl chloride	Not detected	6	2.0	ug/Kg	4/7/05	4/7/05
EPA 8260B	Xylenes	Not detected	18	0.80	ug/Kg	4/7/05	4/7/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	120	52-149		%	4/7/05	4/7/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	104	65-135		%	4/7/05	4/7/05
EPA 8260B	Surrogate recovery: Toluene-d8	92.9	65-135		%	4/7/05	4/7/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0406C20  
Instrument: Chico  
Sequence: C050406  
Dilution Factor: 1  
Initials: LF

Printed: 4/7/05 10:55:19 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-305

Sample Collection Date: 4/6/05

ARF: 47040

APPL ID: AX16906

QCG: \$86TTD-050407BN-85456

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 15.2 Percent Moisture.)							
EPA 8260B-	Trichloroethene	200	29	9.4	ug/Kg	4/7/05	4/7/05
EPA 8260B-	Surrogate recovery: 1,2-Dichloroethane	88.8	52-149		%	4/7/05	4/7/05
EPA 8260B-	Surrogate recovery: 4-Bromofluorobenz	94.7	65-135		%	4/7/05	4/7/05
EPA 8260B-	Surrogate recovery: Toluene-d8	90.4	65-135		%	4/7/05	4/7/05

Run #: 0407N07  
Instrument: Neo  
Sequence: N050405  
Dilution Factor: 50  
Initials: LF

Printed: 4/12/05 5:11:05 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.0860 WATS Bldg 86 Moffett Airfield

Sample ID: 86-WOPT-306

Sample Collection Date: 4/6/05

ARF: 47040

APPL ID: AX16907

CCG: \$86TTS-050406AC-85406

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 20.5 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	1.0	ug/Kg	4/7/05	4/7/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.6	ug/Kg	4/7/05	4/7/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.50	ug/Kg	4/7/05	4/7/05
EPA 8260B	1,1-Dichloroethane	4.1 J	6	1.4	ug/Kg	4/7/05	4/7/05
EPA 8260B	1,1-Dichloroethene	7.1	6	0.99	ug/Kg	4/7/05	4/7/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.91	ug/Kg	4/7/05	4/7/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.78	ug/Kg	4/7/05	4/7/05
EPA 8260B	2-Butanone	Not detected	63	0.89	ug/Kg	4/7/05	4/7/05
EPA 8260B	2-Hexanone	Not detected	63	0.20	ug/Kg	4/7/05	4/7/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	63	1.2	ug/Kg	4/7/05	4/7/05
EPA 8260B	Acetone	15 B J	130	3.5	ug/Kg	4/7/05	4/7/05
EPA 8260B	Benzene	Not detected	6	0.79	ug/Kg	4/7/05	4/7/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.87	ug/Kg	4/7/05	4/7/05
EPA 8260B	Bromoform	Not detected	6	1.0	ug/Kg	4/7/05	4/7/05
EPA 8260B	Bromomethane	Not detected	13	2.0	ug/Kg	4/7/05	4/7/05
EPA 8260B	Carbon disulfide	Not detected	6	1.4	ug/Kg	4/7/05	4/7/05
EPA 8260B	Carbon tetrachloride	Not detected	6	1.0	ug/Kg	4/7/05	4/7/05
EPA 8260B	Chlorobenzene	Not detected	6	0.62	ug/Kg	4/7/05	4/7/05
EPA 8260B	Chloroethane	Not detected	6	2.0	ug/Kg	4/7/05	4/7/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	4/7/05	4/7/05
EPA 8260B	Chloromethane	Not detected	6	2.3	ug/Kg	4/7/05	4/7/05
EPA 8260B	cis-1,2-Dichloroethene	77	6	1.4	ug/Kg	4/7/05	4/7/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.59	ug/Kg	4/7/05	4/7/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.1	ug/Kg	4/7/05	4/7/05
EPA 8260B	Ethylbenzene	Not detected	6	0.81	ug/Kg	4/7/05	4/7/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/7/05	4/7/05
EPA 8260B	Methylene chloride	Not detected	63	5.8	ug/Kg	4/7/05	4/7/05
EPA 8260B	Styrene	Not detected	6	0.87	ug/Kg	4/7/05	4/7/05
EPA 8260B	Tetrachloroethene	35	6	0.68	ug/Kg	4/7/05	4/7/05
EPA 8260B	Toluene	Not detected	6	0.82	ug/Kg	4/7/05	4/7/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.7	ug/Kg	4/7/05	4/7/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.  
B = The analyte was found in a method blank, as well as in the sample.

Run #: 0406C21  
Instrument: Chico  
Sequence: C050406  
Dilution Factor: 1  
Initials: LF

Printed: 4/7/05 10:55:19 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-306

Sample Collection Date: 4/6/05

ARF: 47040

APPL ID: AX16907

QCG: \$86TTS-050406AC-85406

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.54	ug/Kg	4/7/05	4/7/05
EPA 8260B	Trichloroethene	1200 E	6	0.89	ug/Kg	4/7/05	4/7/05
EPA 8260B	Vinyl Acetate	Not detected	63	1.3	ug/Kg	4/7/05	4/7/05
EPA 8260B	Vinyl chloride	Not detected	6	2.1	ug/Kg	4/7/05	4/7/05
EPA 8260B	Xylenes	Not detected	19	0.86	ug/Kg	4/7/05	4/7/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	108	52-149		%	4/7/05	4/7/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	96.2	65-135		%	4/7/05	4/7/05
EPA 8260B	Surrogate recovery: Toluene-d8	97.5	65-135		%	4/7/05	4/7/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.  
B = The analyte was found in a method blank, as well as in the sample.

Run #: 0406C21  
Instrument: Chico  
Sequence: C050406  
Dilution Factor: 1  
Initials: LF

Printed: 4/7/05 10:55:19 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-306

Sample Collection Date: 4/6/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47040

APPL ID: AX16907

QCG: S86TTD-050407BN-85456

Method	Analyte	Result	PQL	MLL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 20.5 Percent Moisture.)							
EPA 8260B-	Trichloroethene	830	31	10	ug/Kg	4/7/05	4/7/05
EPA 8260B-	Surrogate recovery: 1,2-Dichloroethane	87.3	52-149		%	4/7/05	4/7/05
EPA 8260B-	Surrogate recovery: 4-Bromofluorobenz	91.8	65-135		%	4/7/05	4/7/05
EPA 8260B-	Surrogate recovery: Toluene-d8	84.8	65-135		%	4/7/05	4/7/05

Run #: 0407N08  
Instrument: Neo  
Sequence: N050405  
Dilution Factor: 50  
Initials: LF

Printed: 4/12/05 5:11:05 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-307

Sample Collection Date: 4/6/05

ARF: 47040

APPL ID: AX16908

QCG: \$86TTS-050406AC-85406

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 16.8 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	0.97	ug/Kg	4/7/05	4/7/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.5	ug/Kg	4/7/05	4/7/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.58	ug/Kg	4/7/05	4/7/05
EPA 8260B	1,1-Dichloroethane	1.6 J	6	1.4	ug/Kg	4/7/05	4/7/05
EPA 8260B	1,1-Dichloroethene	3.0 J	6	0.95	ug/Kg	4/7/05	4/7/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.87	ug/Kg	4/7/05	4/7/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.75	ug/Kg	4/7/05	4/7/05
EPA 8260B	2-Butanone	Not detected	60	0.85	ug/Kg	4/7/05	4/7/05
EPA 8260B	2-Hexanone	Not detected	60	0.19	ug/Kg	4/7/05	4/7/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	60	1.1	ug/Kg	4/7/05	4/7/05
EPA 8260B	Acetone	8.5 B J	120	3.4	ug/Kg	4/7/05	4/7/05
EPA 8260B	Benzene	Not detected	6	0.76	ug/Kg	4/7/05	4/7/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.83	ug/Kg	4/7/05	4/7/05
EPA 8260B	Bromoform	Not detected	6	0.96	ug/Kg	4/7/05	4/7/05
EPA 8260B	Bromomethane	Not detected	12	1.9	ug/Kg	4/7/05	4/7/05
EPA 8260B	Carbon disulfide	Not detected	6	1.3	ug/Kg	4/7/05	4/7/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.96	ug/Kg	4/7/05	4/7/05
EPA 8260B	Chlorobenzene	Not detected	6	0.59	ug/Kg	4/7/05	4/7/05
EPA 8260B	Chloroethane	Not detected	6	1.9	ug/Kg	4/7/05	4/7/05
EPA 8260B	Chloroform	Not detected	6	1.7	ug/Kg	4/7/05	4/7/05
EPA 8260B	Chloromethane	Not detected	6	2.2	ug/Kg	4/7/05	4/7/05
EPA 8260B	cis-1,2-Dichloroethene	40	6	1.3	ug/Kg	4/7/05	4/7/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.56	ug/Kg	4/7/05	4/7/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.0	ug/Kg	4/7/05	4/7/05
EPA 8260B	Ethylbenzene	Not detected	6	0.77	ug/Kg	4/7/05	4/7/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/7/05	4/7/05
EPA 8260B	Methylene chloride	Not detected	60	5.5	ug/Kg	4/7/05	4/7/05
EPA 8260B	Styrene	Not detected	6	0.83	ug/Kg	4/7/05	4/7/05
EPA 8260B	Tetrachloroethene	3.2 J	6	0.65	ug/Kg	4/7/05	4/7/05
EPA 8260B	Toluene	Not detected	6	0.78	ug/Kg	4/7/05	4/7/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.6	ug/Kg	4/7/05	4/7/05

J = Estimated value, below quantitation limit.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0406C22  
Instrument: Chico  
Sequence: C050406  
Dilution Factor: 1  
Initials: LF

Printed: 4/7/05 10:07:12 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Biskowski

Project: 1990.0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-307

Sample Collection Date: 4/6/05

ARF: 47040

APPL ID: AX16908

QC: \$86TTS-050406AC-85406

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.52	ug/Kg	4/7/05	4/7/05
EPA 8260B	Trichloroethene	240	6	0.85	ug/Kg	4/7/05	4/7/05
EPA 8260B	Vinyl Acetate	Not detected	60	1.2	ug/Kg	4/7/05	4/7/05
EPA 8260B	Vinyl chloride	Not detected	6	2.0	ug/Kg	4/7/05	4/7/05
EPA 8260B	Xylenes	Not detected	18	0.82	ug/Kg	4/7/05	4/7/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	114	52-149		%	4/7/05	4/7/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	103	65-135		%	4/7/05	4/7/05
EPA 8260B	Surrogate recovery: Toluene-d8	93.5	65-135		%	4/7/05	4/7/05

J = Estimated value, below quantitation limit.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0406C22  
Instrument: Chico  
Sequence: C050406  
Dilution Factor: 1  
Initials: LF

Printed: 4/7/05 10:07:12 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-308

Sample Collection Date: 4/6/05

ARF: 47040

APPL ID: AX16909

QCG: S86TTS-050406AC-85406

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 18.5 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	0.99	ug/Kg	4/7/05	4/7/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.5	ug/Kg	4/7/05	4/7/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.59	ug/Kg	4/7/05	4/7/05
EPA 8260B	1,1-Dichloroethane	2.5 J	6	1.4	ug/Kg	4/7/05	4/7/05
EPA 8260B	1,1-Dichloroethene	9.0	6	0.97	ug/Kg	4/7/05	4/7/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.89	ug/Kg	4/7/05	4/7/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.76	ug/Kg	4/7/05	4/7/05
EPA 8260B	2-Butanone	Not detected	61	0.87	ug/Kg	4/7/05	4/7/05
EPA 8260B	2-Hexanone	Not detected	61	0.20	ug/Kg	4/7/05	4/7/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	61	1.1	ug/Kg	4/7/05	4/7/05
EPA 8260B	Acetone	15 B J	120	3.4	ug/Kg	4/7/05	4/7/05
EPA 8260B	Benzene	Not detected	6	0.77	ug/Kg	4/7/05	4/7/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.85	ug/Kg	4/7/05	4/7/05
EPA 8260B	Bromoform	Not detected	6	0.98	ug/Kg	4/7/05	4/7/05
EPA 8260B	Bromomethane	Not detected	12	2.0	ug/Kg	4/7/05	4/7/05
EPA 8260B	Carbon disulfide	Not detected	6	1.3	ug/Kg	4/7/05	4/7/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.98	ug/Kg	4/7/05	4/7/05
EPA 8260B	Chlorobenzene	Not detected	6	0.60	ug/Kg	4/7/05	4/7/05
EPA 8260B	Chloroethane	Not detected	6	1.9	ug/Kg	4/7/05	4/7/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	4/7/05	4/7/05
EPA 8260B	Chloromethane	Not detected	6	2.2	ug/Kg	4/7/05	4/7/05
EPA 8260B	cis-1,2-Dichloroethene	34	6	1.3	ug/Kg	4/7/05	4/7/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.58	ug/Kg	4/7/05	4/7/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.0	ug/Kg	4/7/05	4/7/05
EPA 8260B	Ethylbenzene	Not detected	6	0.79	ug/Kg	4/7/05	4/7/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/7/05	4/7/05
EPA 8260B	Methylene chloride	Not detected	61	5.6	ug/Kg	4/7/05	4/7/05
EPA 8260B	Styrene	Not detected	6	0.85	ug/Kg	4/7/05	4/7/05
EPA 8260B	Tetrachloroethene	28	6	0.66	ug/Kg	4/7/05	4/7/05
EPA 8260B	Toluene	Not detected	6	0.80	ug/Kg	4/7/05	4/7/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.7	ug/Kg	4/7/05	4/7/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0406C23  
Instrument: Chico  
Sequence: C050406  
Dilution Factor: 1  
Initials: LF

Printed: 4/7/05 10:07:12 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-308

Sample Collection Date: 4/6/05

ARF: 47040

APPL ID: AX16909

QCG: \$86TTS-050406AC-85406

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.53	ug/Kg	4/7/05	4/7/05
EPA 8260B	Trichloroethene	1000 E	6	0.87	ug/Kg	4/7/05	4/7/05
EPA 8260B	Vinyl Acetate	Not detected	61	1.2	ug/Kg	4/7/05	4/7/05
EPA 8260B	Vinyl chloride	Not detected	6	2.1	ug/Kg	4/7/05	4/7/05
EPA 8260B	Xylenes	Not detected	18	0.83	ug/Kg	4/7/05	4/7/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	112	52-149		%	4/7/05	4/7/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	102	65-135		%	4/7/05	4/7/05
EPA 8260B	Surrogate recovery: Toluene-d8	96.1	65-135		%	4/7/05	4/7/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.  
B = The analyte was found in a method blank, as well as in the sample.

Run #: 0406C23  
Instrument: Chico  
Sequence: C050406  
Dilution Factor: 1  
Initials: LF

Printed: 4/7/05 10:07:12 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski  
Project: 1990.0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-308

Sample Collection Date: 4/6/05

ARF: 47040

APPL ID: AX16909

QCG: S86TTD-050407BN-85456

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 18.5 Percent Moisture.)							
EPA 8260B-	Trichloroethene	470	31	9.8	ug/Kg	4/7/05	4/7/05
EPA 8260B-	Surrogate recovery: 1,2-Dichloroethane	86.0	52-149		%	4/7/05	4/7/05
EPA 8260B-	Surrogate recovery: 4-Bromofluorobenz	94.5	65-135		%	4/7/05	4/7/05
EPA 8260B-	Surrogate recovery: Toluene-d8	90.4	65-135		%	4/7/05	4/7/05

Run #: 0407N09  
Instrument: Neo  
Sequence: N050405  
Dilution Factor: 50  
Initials: LF

Printed: 4/12/05 5:11:05 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-309

Sample Collection Date: 4/6/05

ARF: 47040

APPL ID: AX16910

QCG: \$86TTW-050406B-85416

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/7/05	4/7/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/7/05	4/7/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/7/05	4/7/05
EPA 8260B	1,1-Dichloroethane	Not detected	0.5	0.19	ug/L	4/7/05	4/7/05
EPA 8260B	1,1-Dichloroethene	Not detected	0.5	0.30	ug/L	4/7/05	4/7/05
EPA 8260B	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/7/05	4/7/05
EPA 8260B	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/7/05	4/7/05
EPA 8260B	2-Butanone	Not detected	5	0.6	ug/L	4/7/05	4/7/05
EPA 8260B	2-Hexanone	Not detected	5	0.92	ug/L	4/7/05	4/7/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/7/05	4/7/05
EPA 8260B	Acetone	Not detected	5	0.95	ug/L	4/7/05	4/7/05
EPA 8260B	Benzene	Not detected	0.5	0.16	ug/L	4/7/05	4/7/05
EPA 8260B	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/7/05	4/7/05
EPA 8260B	Bromoform	Not detected	0.5	0.14	ug/L	4/7/05	4/7/05
EPA 8260B	Bromomethane	Not detected	1	0.24	ug/L	4/7/05	4/7/05
EPA 8260B	Carbon disulfide	Not detected	0.5	0.2	ug/L	4/7/05	4/7/05
EPA 8260B	Carbon tetrachloride	Not detected	0.5	0.10	ug/L	4/7/05	4/7/05
EPA 8260B	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/7/05	4/7/05
EPA 8260B	Chloroethane	Not detected	0.5	0.21	ug/L	4/7/05	4/7/05
EPA 8260B	Chloroform	Not detected	0.5	0.16	ug/L	4/7/05	4/7/05
EPA 8260B	Chloromethane	Not detected	0.5	0.31	ug/L	4/7/05	4/7/05
EPA 8260B	cis-1,2-Dichloroethene	Not detected	0.5	0.16	ug/L	4/7/05	4/7/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/7/05	4/7/05
EPA 8260B	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/7/05	4/7/05
EPA 8260B	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/7/05	4/7/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/7/05	4/7/05
EPA 8260B	Methylene chloride	Not detected	5	0.35	ug/L	4/7/05	4/7/05
EPA 8260B	Styrene	Not detected	0.5	0.25	ug/L	4/7/05	4/7/05
EPA 8260B	Tetrachloroethene	Not detected	0.5	0.15	ug/L	4/7/05	4/7/05
EPA 8260B	Toluene	Not detected	0.5	0.17	ug/L	4/7/05	4/7/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	0.5	0.19	ug/L	4/7/05	4/7/05

Run #: 0406S36  
Instrument: Sweetpea  
Sequence: S050405  
Dilution Factor: 1  
Initials: LF

Printed: 4/7/05 10:39:13 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-309

Sample Collection Date: 4/6/05

ARF: 47040

APPL ID: AX16910

QC: \$86TTW-050406B-85416

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/7/05	4/7/05
EPA 8260B	Trichloroethene	Not detected	0.5	0.15	ug/L	4/7/05	4/7/05
EPA 8260B	Vinyl Acetate	Not detected	5	0.31	ug/L	4/7/05	4/7/05
EPA 8260B	Vinyl chloride	Not detected	0.5	0.23	ug/L	4/7/05	4/7/05
EPA 8260B	Xylenes	Not detected	1.5	0.19	ug/L	4/7/05	4/7/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	113	62-139		%	4/7/05	4/7/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	103	75-125		%	4/7/05	4/7/05
EPA 8260B	Surrogate recovery: Toluene-d8	98.1	75-125		%	4/7/05	4/7/05

Run #: 0406S36  
Instrument: Sweetpea  
Sequence: S050405  
Dilution Factor: 1  
Initials: LF

Printed: 4/7/05 10:39:13 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

April 25, 2005

Service Request No: K2502556

Robert Wise  
APPL, Inc.  
4203 W. Swift Avenue  
Fresno, CA 93722

**RE: 47040**

Dear Robert:

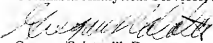
Enclosed are the results of the sample(s) submitted to our laboratory on April 8, 2005. For your reference, these analyses have been assigned our service request number K2502556.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAC standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3376.

Respectfully submitted,

**Columbia Analytical Services, Inc.**



Gregory Salata, Ph.D.  
Project Chemist

GS/dj

Page 1 of 33

COLUMBIA ANALYTICAL SERVICES, INC.

Client: Agriculture & Priority Pollutant Labs  
Project: 47040  
Sample Matrix: Water and Soil

Service Request No.: K2502556  
Date Received: 04/08/05

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier III validation deliverables including summary forms and all of the associated raw data for each of the analyses. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

One water and five soil samples were received for analysis at Columbia Analytical Services on 04/08/05. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

General Chemistry Parameters

No anomalies associated with the analysis of these samples were observed.

Approved by

Date

00005



## COLUMBIA ANALYTICAL SERVICES, INC.

## Analytical Report

Client : Agriculture & Priority Pollutants Labs  
 Project Name : NA  
 Project Number : 47040  
 Sample Matrix : SOIL

Service Request : K2502556  
 Date Collected : 04/06/05  
 Date Received : 04/08/05

## Carbon, Total Organic

Analysis Method : Walkley-Black  
 Test Notes :

Units : mg Kg (ppm)  
 Basis : Dry

Sample Name	Lab Code	MRL	Dilution		Date Analyzed	Result	Result Notes
			MDL	Factor			
80-WOPT-301	K2502556-001	2000	900	1	04/21/05	ND	
80-WOPT-305	K2502556-002	2000	900	1	04/21/05	ND	
80-WOPT-306	K2502556-003	2000	900	1	04/21/05	1820	J
80-WOPT-307	K2502556-004	2000	900	1	04/21/05	ND	
80-WOPT-308	K2502556-005	2000	900	1	04/21/05	8460	
Method Blank	K2502556-MB	2000	900	1	04/21/05	ND	

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Air Field, Building 88, CTO 86  
**Collection Date:** April 6, 2005  
**LDC Report Date:** May 24, 2005  
**Matrix:** Soil/Water  
**Parameters:** Total Organic Carbon  
**Validation Level:** EPA Level III & IV  
**Laboratory:** APPL, Inc./Columbia Analytical Services, Inc.  
**Sample Delivery Group (SDG):** 47040/K2502556

**Sample Identification**

86-WOPT-301  
86-WOPT-305  
86-WOPT-306  
86-WOPT-307\*\*  
86-WOPT-308  
86-WOPT-309  
86-WOPT-301DUP  
86-WOPT-309MS  
86-WOPT-309DUP

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 6 soil samples and 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per Walkley-Black Method and EPA SW 846 9060 for Total Organic Carbon (TOC).

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the method stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks results are summarized in Section III.

Field duplicates are summarized in Section IX.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Calibration**

### **a. Initial Calibration**

All criteria for the initial calibration were met.

### **b. Calibration Verification**

A continuing calibration verification (CCV) analysis was performed. The criteria for analysis were met.

## **III. Blanks**

Method blanks were reviewed for each matrix as applicable. No total organic carbon contaminants were found in the method blanks.

## **IV. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **V. Duplicates**

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Relative percent differences (RPD) were within QC limits.

## **VI. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **VII. Sample Result Verification**

All sample result verifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **VIII. Overall Assessment of Data**

Data flags have been summarized at the end of this report.

## IX. Field Duplicates

No field duplicates were identified in this SDG.

## X. Field Blanks

Sample 86-WOPT-309 was identified as an equipment rinsate. No total organic carbon contaminants were found in this blank with the following exceptions:

Equipment Rinsate ID	Compound	Concentration (mg/L)
86-WOPT-309	Total organic carbon	0.1

**Moffett Air Field, Building 88, CTO 86**

**Total Organic Carbon - Data Qualification Summary - SDG 47040/K2502556**

No Sample Data Qualified in this SDG

**Moffett Air Field, Building 88, CTO 86**

**Total Organic Carbon - Laboratory Blank Data Qualification Summary - SDG 47040/K2502556**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Air Field, Building 88, CTO 86

**Collection Date:** April 6, 2005

**LDC Report Date:** May 26, 2005

**Matrix:** Soil/Water

**Parameters:** Volatiles

**Validation Level:** EPA Level III & IV

**Laboratory:** APPL, Inc.

**Sample Delivery Group (SDG):** 47040

**Sample Identification**

86-WOPT-300  
86-WOPT-301  
86-WOPT-301DL  
86-WOPT-305  
86-WOPT-305DL  
86-WOPT-306  
86-WOPT-306DL  
86-WOPT-307\*\*  
86-WOPT-308  
86-WOPT-308DL  
86-WOPT-309

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 9 soil samples and 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.



## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 15.0% for each individual compound and less than or equal to 30.0% for calibration check compounds (CCCs) with the following exceptions:

Date	Compound	%RSD	Associated Samples	Flag	A or P
4/6/05	Acetone	17	86-WOPT-301 86-WOPT-305 86-WOPT-306 86-WOPT-307** 86-WOPT-308 050407S	J (all detects) UJ (all non-detects)	A

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination ( $r^2$ ) was greater than or equal to 0.990 .

Average relative response factors (RRF) for all system performance check compounds (SPCCs) were within method and validation criteria.

## IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 20.0% for all compounds with the following exceptions:

Data	Compound	%D	Associated Samples	Flag	A or P
4/6/05 (0406C12S)	Chloromethane  Acetone	21  28	86-WOPT-301 86-WOPT-305 86-WOPT-306 86-WOPT-307** 86-WOPT-308 050407S	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A
4/6/05 (0406S21W)	Chloromethane	23	All water samples in SDG 47040	J (all detects) UJ (all non-detects)	A

All of the continuing calibration RRF values for all system performance check compounds (SPCCs) were within method and validation criteria.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Analysis Date	Compound TIC (RT in minutes)	Concentration	Associated Samples
050407S	4/7/05	Acetone	10 ug/Kg	86-WOPT-301 86-WOPT-305 86-WOPT-306 86-WOPT-307** 86-WOPT-308

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
86-WOPT-301	Acetone	11 ug/Kg	120U ug/Kg
86-WOPT-305	Acetone	9.1 ug/Kg	120U ug/Kg
86-WOPT-306	Acetone	15 ug/Kg	130U ug/Kg
86-WOPT-307**	Acetone	8.5 ug/Kg	120U ug/Kg
86-WOPT-308	Acetone	15 ug/Kg	120U ug/Kg

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## IX. Regional Quality Assurance and Quality Control

Not applicable.

## X. Internal Standards

All internal standard areas and retention times were within QC limits.

## XI. Target Compound Identifications

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
86-WOPT-301 86-WOPT-305 86-WOPT-306 86-WOPT-308	Trichloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	A

Raw data were not evaluated for the samples reviewed by Level III criteria.

## XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

#### **XIV. System Performance**

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

#### **XV. Overall Assessment**

Data flags are summarized at the end of this report if data has been qualified.

#### **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

#### **XVII. Field Blanks**

Sample 86-WOPT-300 was identified as a trip blank. No volatile contaminants were found in this blank with the following exceptions:

<b>Trip Blank ID</b>	<b>Compound</b>	<b>Concentration (ug/L)</b>
86-WOPT-300	Acetone	1.7

Sample 86-WOPT-309 was identified as an equipment rinsate. No volatile contaminants were found in this blank.

**Moffett Air Field, Building 88, CTO 86**  
**Volatiles - Data Qualification Summary - SDG 47040**

SDG	Sample	Compound	Flag	A or P	Reason
47040	86-WOPT-301 86-WOPT-305 86-WOPT-306 86-WOPT-307** 86-WOPT-308	Acetone	J (all detects) UJ (all non-detects)	A	Initial calibration (%RSD)
47040	86-WOPT-301 86-WOPT-305 86-WOPT-306 86-WOPT-307** 86-WOPT-308	Chloromethane  Acetone	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
47040	86-WOPT-300 86-WOPT-309	Chloromethane	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
47040	86-WOPT-301 86-WOPT-305 86-WOPT-306 86-WOPT-308	Trichloroethene	J (all detects)	A	Compound quantitation and CROIs

**Moffett Air Field, Building 88, CTO 86**  
**Volatiles - Laboratory Blank Data Qualification Summary - SDG 47040**

SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P
47040	86-WOPT-301	Acetone	120U ug/Kg	A
47040	86-WOPT-305	Acetone	120U ug/Kg	A
47040	86-WOPT-306	Acetone	130U ug/Kg	A
47040	86-WOPT-307**	Acetone	120U ug/Kg	A
47040	86-WOPT-308	Acetone	120U ug/Kg	A



**NUMBER**  
**10451**

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management

0047052-1A

PROJECT NAME		PURCHASER ORDER NO.		ANALYSES REQUIRED		LABORATORY NAME	
PROJECT LOCATION		PROJECT NO.		PROJECT CONTACT PHONE NUMBER		PROJECT COMMENTS	
SAMPLE NAME		DATE COLLECTED		TIME COLLECTED		DEPTH	
SAMPLE ID		DATE COLLECTED		TIME COLLECTED		DEPTH	
PROJECT CONTACT PHONE NUMBER		PROJECT NO.		PROJECT CONTACT PHONE NUMBER		PROJECT COMMENTS	
PROJECT CONTACT PHONE NUMBER		PROJECT NO.		PROJECT CONTACT PHONE NUMBER		PROJECT COMMENTS	
Building 88	65532	1990-0960	Courier	449-756-7558	APPL	Project Information Section Do not submit to Laboratory	Continuous Coring
Moffett Field, Ca	1990-0960	Courier	449-756-7558	APPL	Project Information Section Do not submit to Laboratory	Continuous Coring	
Army Base	1990-0960	Courier	449-756-7558	APPL	Project Information Section Do not submit to Laboratory	Continuous Coring	
Lynbrook	1990-0960	Courier	449-756-7558	APPL	Project Information Section Do not submit to Laboratory	Continuous Coring	
36-WOPT-310	417105	0810	3	3	3	3	3
36-WOPT-311	417105	0832	12	12	12	12	12
36-WOPT-312	417105	0810	4	4	4	4	4
36-WOPT-313	417105	0820	4	4	4	4	4
36-WOPT-314	417105	0902	4	4	4	4	4
36-WOPT-315	417105	0907	4	4	4	4	4
36-WOPT-316	417105	0910	4	4	4	4	4
36-WOPT-317	417105	0945	4	4	4	4	4
36-WOPT-318	417105	1000	4	4	4	4	4
36-WOPT-319	417105	1035	4	4	4	4	4
36-WOPT-320	417105	1045	4	4	4	4	4
36-WOPT-321	417105	1050	4	4	4	4	4
36-WOPT-322	417105	1055	4	4	4	4	4
36-WOPT-323	417105	1100	4	4	4	4	4
36-WOPT-324	417105	1105	4	4	4	4	4
36-WOPT-325	417105	1110	4	4	4	4	4
36-WOPT-326	417105	1115	4	4	4	4	4
36-WOPT-327	417105	1120	4	4	4	4	4
36-WOPT-328	417105	1125	4	4	4	4	4
36-WOPT-329	417105	1130	4	4	4	4	4
36-WOPT-330	417105	1135	4	4	4	4	4
36-WOPT-331	417105	1140	4	4	4	4	4
36-WOPT-332	417105	1145	4	4	4	4	4
36-WOPT-333	417105	1150	4	4	4	4	4
36-WOPT-334	417105	1155	4	4	4	4	4
36-WOPT-335	417105	1200	4	4	4	4	4
36-WOPT-336	417105	1205	4	4	4	4	4
36-WOPT-337	417105	1210	4	4	4	4	4
36-WOPT-338	417105	1215	4	4	4	4	4
36-WOPT-339	417105	1220	4	4	4	4	4
36-WOPT-340	417105	1225	4	4	4	4	4
36-WOPT-341	417105	1230	4	4	4	4	4
36-WOPT-342	417105	1235	4	4	4	4	4
36-WOPT-343	417105	1240	4	4	4	4	4
36-WOPT-344	417105	1245	4	4	4	4	4
36-WOPT-345	417105	1250	4	4	4	4	4
36-WOPT-346	417105	1255	4	4	4	4	4
36-WOPT-347	417105	1300	4	4	4	4	4
36-WOPT-348	417105	1305	4	4	4	4	4
36-WOPT-349	417105	1310	4	4	4	4	4
36-WOPT-350	417105	1315	4	4	4	4	4
36-WOPT-351	417105	1320	4	4	4	4	4
36-WOPT-352	417105	1325	4	4	4	4	4
36-WOPT-353	417105	1330	4	4	4	4	4
36-WOPT-354	417105	1335	4	4	4	4	4
36-WOPT-355	417105	1340	4	4	4	4	4
36-WOPT-356	417105	1345	4	4	4	4	4
36-WOPT-357	417105	1350	4	4	4	4	4
36-WOPT-358	417105	1355	4	4	4	4	4
36-WOPT-359	417105	1400	4	4	4	4	4
36-WOPT-360	417105	1405	4	4	4	4	4
36-WOPT-361	417105	1410	4	4	4	4	4
36-WOPT-362	417105	1415	4	4	4	4	4
36-WOPT-363	417105	1420	4	4	4	4	4
36-WOPT-364	417105	1425	4	4	4	4	4
36-WOPT-365	417105	1430	4	4	4	4	4
36-WOPT-366	417105	1435	4	4	4	4	4
36-WOPT-367	417105	1440	4	4	4	4	4
36-WOPT-368	417105	1445	4	4	4	4	4
36-WOPT-369	417105	1450	4	4	4	4	4
36-WOPT-370	417105	1455	4	4	4	4	4
36-WOPT-371	417105	1500	4	4	4	4	4
36-WOPT-372	417105	1505	4	4	4	4	4
36-WOPT-373	417105	1510	4	4	4	4	4
36-WOPT-374	417105	1515	4	4	4	4	4
36-WOPT-375	417105	1520	4	4	4	4	4
36-WOPT-376	417105	1525	4	4	4	4	4
36-WOPT-377	417105	1530	4	4	4	4	4
36-WOPT-378	417105	1535	4	4	4	4	4
36-WOPT-379	417105	1540	4	4	4	4	4
36-WOPT-380	417105	1545	4	4	4	4	4
36-WOPT-381	417105	1550	4	4	4	4	4
36-WOPT-382	417105	1555	4	4	4	4	4
36-WOPT-383	417105	1600	4	4	4	4	4
36-WOPT-384	417105	1605	4	4	4	4	4
36-WOPT-385	417105	1610	4	4	4	4	4
36-WOPT-386	417105	1615	4	4	4	4	4
36-WOPT-387	417105	1620	4	4	4	4	4
36-WOPT-388	417105	1625	4	4	4	4	4
36-WOPT-389	417105	1630	4	4	4	4	4
36-WOPT-390	417105	1635	4	4	4	4	4
36-WOPT-391	417105	1640	4	4	4	4	4
36-WOPT-392	417105	1645	4	4	4	4	4
36-WOPT-393	417105	1650	4	4	4	4	4
36-WOPT-394	417105	1655	4	4	4	4	4
36-WOPT-395	417105	1700	4	4	4	4	4
36-WOPT-396	417105	1705	4	4	4	4	4
36-WOPT-397	417105	1710	4	4	4	4	4
36-WOPT-398	417105	1715	4	4	4	4	4
36-WOPT-399	417105	1720	4	4	4	4	4
36-WOPT-400	417105	1725	4	4	4	4	4
36-WOPT-401	417105	1730	4	4	4	4	4
36-WOPT-402	417105	1735	4	4	4	4	4
36-WOPT-403	417105	1740	4	4	4	4	4
36-WOPT-404	417105	1745	4	4	4	4	4
36-WOPT-405	417105	1750	4	4	4	4	4
36-WOPT-406	417105	1755	4	4	4	4	4
36-WOPT-407	417105	1800	4	4	4	4	4
36-WOPT-408	417105	1805	4	4	4	4	4
36-WOPT-409	417105	1810	4	4	4	4	4
36-WOPT-410	417105	1815	4	4	4	4	4
36-WOPT-411	417105	1820	4	4	4	4	4
36-WOPT-412	417105	1825	4	4	4	4	4
36-WOPT-413	417105	1830	4	4	4	4	4
36-WOPT-414	417105	1835	4	4	4	4	4
36-WOPT-415	417105	1840	4	4	4	4	4
36-WOPT-416	417105	1845	4	4	4	4	4
36-WOPT-417	417105	1850	4	4	4	4	4
36-WOPT-418	417105	1855	4	4	4	4	4
36-WOPT-419	417105	1900	4	4	4	4	4
36-WOPT-420	417105	1905	4	4	4	4	4
36-WOPT-421	417105	1910	4	4	4	4	4
36-WOPT-422	417105	1915	4	4	4	4	4
36-WOPT-423	417105	1920	4	4	4	4	4
36-WOPT-424	417105	1925	4	4	4	4	4
36-WOPT-425	417105	1930	4	4	4	4	4
36-WOPT-426	417105	1935	4	4	4	4	4
36-WOPT-427	417105	1940	4	4	4	4	4
36-WOPT-428	417105	1945	4	4	4	4	4
36-WOPT-429	417105	1950	4	4	4	4	4
36-WOPT-430	417105	1955	4	4	4	4	4
36-WOPT-431	417105	2000	4	4	4	4	4
36-WOPT-432	417105	2005	4	4	4	4	4
36-WOPT-433	417105	2010	4	4	4	4	4
36-WOPT-434	417105	2015	4	4	4	4	4
36-WOPT-435	417105	2020	4	4	4	4	4
36-WOPT-436	417105	2025	4	4	4	4	4
36-WOPT-437	417105	2030	4	4	4	4	4
36-WOPT-438	417105	2035	4	4	4	4	4
36-WOPT-439	417105	2040	4	4	4	4	4
36-WOPT-440	417105	2045	4	4	4	4	4
36-WOPT-441	417105	2050	4	4	4	4	4
36-WOPT-442	417105	2055	4	4	4	4	4
36-WOPT-443	417105	2100	4	4	4	4	4
36-WOPT-444	417105	2105	4	4	4	4	4
36-WOPT-445	417105	2110	4	4	4	4	4
36-WOPT-446	417105	2115	4	4	4	4	4
36-WOPT-447	417105	2120	4	4	4	4	4
36-WOPT-448	417105	2125	4	4	4	4	4
36-WOPT-449	417105	2130	4	4	4	4	4
36-WOPT-450	417105	2135	4	4	4	4	4
36-WOPT-451	417105	2140	4	4	4	4	4
36-WOPT-452	417105	2145	4	4	4	4	4
36-WOPT-453	417105	2150	4	4	4	4	4
36-WOPT-454	417105	2155	4	4	4	4	4
36-WOPT-455	417105	2200	4	4	4	4	4
36-WOPT-456	417105	2205	4	4	4	4	4
36-WOPT-457	417105	2210	4	4	4	4	4
36-WOPT-458	417105	2215	4	4	4	4	4
36-WOPT-459	417105	2220	4	4	4	4	4
36-WOPT-460	417105	2225	4	4	4	4	4
36-WOPT-461	417105	2230	4	4	4	4	4
36-WOPT-462	417105	2235	4	4	4	4	4
36-WOPT-463	417105	2240	4	4	4	4	4
36-WOPT-464	417105	2245	4	4	4	4	4
36-WOPT-465	417105	2250	4	4	4	4	4
36-WOPT-466	417105	2255	4	4	4	4	4
36-WOPT-467	417105	2300	4	4	4	4	4
36-WOPT-468	417105	2305	4	4	4	4	4
36-WOPT-469	417105	2310	4	4	4	4	4
36-WOPT-470	417105	2315	4	4	4	4	4
36-WOPT-471	417105	2320	4	4	4	4	4
36-WOPT-472	417105	2325	4	4	4	4	4
36-WOPT-473	417105	2330	4	4	4	4	4
36-WOPT-474	417105	2335	4	4	4	4	4
36-WOPT-475	417105	2340	4	4	4	4	4
36-WOPT-476	417105	2345	4	4	4	4	4
36-WOPT-477	417105	2350	4	4	4	4	4
36-WOPT-478	417105	2355	4	4	4	4	4
36-WOPT-479	417105	2400	4	4	4	4	4
36-WOPT-480	417105	2405	4	4	4	4	4
36-WOPT-481	417105	2410	4	4	4	4	4
36-WOPT-482	417105	2415	4	4	4	4	4
36-WOPT-483	417105	2420	4	4	4	4	4
36-WOPT-484	417105	2425	4	4	4	4	4
36-WOPT-485	417105						



TETRA TECH

1150 Columbia Street, Suite 400  
San Diego, CA 92101 (619) 594-8866

## CHAIN-OF-CUSTODY RECORD

NUMBER 10447

PROJECT NAME		PURCHASE ORDER NO		PROJECT NO		ANALYSES REQUIRED		LABORATORY NAME		Project Information Section Do not submit to Laboratory	
SAMPLE ID	DATE COLLECTED	TIME COLLECTED	NO. OF CONTAINERS	LEVEL	1	2	3	4	5	6	7
Building 88	4/1/05	1415	4	X	S	24	X	X	APPL	CC-88-3	70.75 kg
Moffett Field Co	4/1/05	1435	4	X	S	24	X	X		CC-88-3	95.10 kg
Wendy Bryant	4/1/05	1440	4	X	S	24	X	X		CC-88-3	100.08 kg
Lynn Jefferson	4/1/05	1443	4	X	S	24	X	X		CC-88-3	104.45 kg
	4/1/05	1455	4	X	S	24	X	X		CC-88-3	100.75 kg
	4/1/05	1555	18	X	S	24	X	X		CC-88-3	210.25 kg
	4/1/05	1645	4	X	S	24	X	X		CC-88-3	145.40 kg
										EQ Ansate	- - ER
LABORATORY INST. INSTRUCTIONS/COMMENTS											
TOC analysis comp Day Tar											
NMR TOC unpreserved											
COMPOSITE DESCRIPTION											
LABORATORY COMMENTS											
Continuous Coring											

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management

0047052-1N

Data Validation Package  
for

EPA METHOD 8260B  
Volatile Organic Compounds

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## Case Narrative

ARF: 47052

Project: 1990.0860 WATS Bldg 88 Moffett Airfield

State Certification Number: CA1312

Results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

### Sample Receipt Information:

The sample group was received April 7, 2005, at 3.5°C. The samples were assigned Analytical Request Form (ARF) number 47052. The sample numbers and requested analyses were compared to the chains of custody. The soil TOC analysis was sub-contracted to Columbia Analytical Laboratory. No exception was noted.

Sample Table

CLIENT ID	APPL ID	Matrix	Date Sampled	Date Received
86-WOPT-310	AX16951	WATER	04/07/05	04/07/05
86-WOPT-311	AX16952	SOIL	04/07/05	04/07/05
86-WOPT-312	AX16953	SOIL	04/07/05	04/07/05
86-WOPT-313	AX16954	SOIL	04/07/05	04/07/05
86-WOPT-314	AX16955	SOIL	04/07/05	04/07/05
86-WOPT-315	AX16956	SOIL	04/07/05	04/07/05
86-WOPT-316	AX16957	SOIL	04/07/05	04/07/05
86-WOPT-317	AX16958	SOIL	04/07/05	04/07/05
86-WOPT-318	AX16959	SOIL	04/07/05	04/07/05
86-WOPT-319	AX16960	SOIL	04/07/05	04/07/05
86-WOPT-322	AX16961	SOIL	04/07/05	04/07/05
86-WOPT-323	AX16962	SOIL	04/07/05	04/07/05
86-WOPT-324	AX16963	SOIL	04/07/05	04/07/05
86-WOPT-325	AX16964	SOIL	04/07/05	04/07/05
86-WOPT-326	AX16965	SOIL	04/07/05	04/07/05
86-WOPT-327	AX16966	SOIL	04/07/05	04/07/05
86-WOPT-328	AX16967	SOIL	04/07/05	04/07/05
86-WOPT-329	AX16968	WATER	04/07/05	04/07/05

# EPA Method 8260B

## Volatile Organic Analysis

### Sample Preparation:

The samples were purged according to EPA method 5030B. All holding times were met.

### Sample Analysis Information:

The samples were analyzed according to the method using a Hewlett Packard Gas Chromatograph with a mass spectrometer detector. Samples 86-WOPT-301, 86-WOPT-305, 86-WOPT-306 and 86-WOPT-308 required dilutions. These encores were extruded into methanol for the dilutions.

The internal standard (IS) 1,4-dichlorobenzene was below the 50% acceptance criteria for samples 86-WOPT-323 and 86-WOPT-325. The samples were run at a 50 to 1 dilution. The compounds that exceeded linear calibration range as well as the compounds calculated using the low IS are reported on a second form 1 for these two samples. The compounds that are calculated using this IS are 1,1,2,2-Tetrachloroethane and 4-Methyl-2-Pentanone.

Samples 86-WOPT-312, 86-WOPT-313, 86-WOPT-314, 86-WOPT-315, 86-WOPT-316, 86-WOPT-317, 86-WOPT-318, 86-WOPT-319, 86-WOPT-323, 86-WOPT-334, 86-WOPT-311, 86-WOPT-325, 86-WOPT-326, 86-WOPT-327 and 86-WOPT-328 required dilutions. Both the undiluted and diluted results are reported for compounds that exceeded linear calibration range.

Sample 86-WOPT-312, required a dilution for Tetrachloroethene because its response exceeded linear calibration range of the instrument. When the dilution was run, the diluted result for Tetrachloroethane was much higher than the initial run. In addition, there was Trichloroethane in the dilution at a much higher level than found in the original run. Both compounds are reported on the undiluted form 1 as well as the diluted form 1. The client was notified of the discrepancies.

### Quality Control/Assurance

#### Calibrations:

Initial and continuing calibrations were performed according to the method. For the continuing calibration performed on Chico file ID: 0407C32W.D, 2-Hexanone and 4-Methyl-2-Pentanone increased in response with a 28%D and 22%D respectively. All calibration criteria were met.

#### Blanks:

Acetone was detected above the MDL but below the reporting limit in the 050407AC method blank and 050407BC method blank at 11 ug/kg and 7.9 ug/kg. All Acetone detections were flagged with a "B" for the associated samples. No other target analytes were detected at or above the reporting limits in the method blanks.

**Spikes:**

Laboratory Control Spikes (LCS) were used for quality assurance. A second-source standard was used for the LCS. All spike and second-source criteria were met.

Sample 86-WOPT -311 was designated by the client for an MS/MSD analysis. Trichloroethene recovered above the upper limit of 135% at 497% in the MS and Chlorobenzene recovered below the lower limit of 65% at 61.1% in the MSD. The RPD for both of these compounds was above the 30% limit. All other recoveries were within acceptance limits.

Sample 86-WOPT was also designated by the client as an MS/MSD. Trichloroethene recovered above the upper limit of 135% at 776% and 281%. The parent sample results were more than ten times the spiking level.

**Surrogates**

All surrogate recoveries were within control limits.

**Tuning:**

The instrument was tuned using BFB. All method criteria were met.

**Internal Standards**

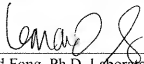
The internal standard area counts were compared to the mid-point of the initial calibration according to method 8260. The internal standard (IS) 1,4-dichlorobenzene was below the 50% acceptance criteria for samples 86-WOPT-323 and 86-WOPT-325. The samples were run at a 50 to 1 dilution. The compounds that exceeded linear calibration range as well as the compounds calculated using the low IS are reported on a second form 1 for these two samples. The compounds that are calculated using the IS are 1,1,2,2-Tetrachloroethane and 4-Methyl-2-Pentanone. All other method criteria were met.

**Summary:**

No additional problem was encountered. All data were acceptable.

## CERTIFICATION

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the hard copy has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

 4/27/15  
\_\_\_\_\_  
Leonard Fong, Ph.D, Laboratory Director / Date

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-310

Sample Collection Date: 4/7/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47052

APPL ID: AX16951

QCG: \$86TTW-050407AN-85462

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/8/05	4/8/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/8/05	4/8/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/8/05	4/8/05
EPA 8260B	1,1-Dichloroethane	Not detected	0.5	0.19	ug/L	4/8/05	4/8/05
EPA 8260B	1,1-Dichloroethene	Not detected	0.5	0.30	ug/L	4/8/05	4/8/05
EPA 8260B	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/8/05	4/8/05
EPA 8260B	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/8/05	4/8/05
EPA 8260B	2-Butanone	Not detected	5	0.6	ug/L	4/8/05	4/8/05
EPA 8260B	2-Hexanone	Not detected	5	0.92	ug/L	4/8/05	4/8/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/8/05	4/8/05
EPA 8260B	Acetone	3.6 J	5	0.95	ug/L	4/8/05	4/8/05
EPA 8260B	Benzene	Not detected	0.5	0.16	ug/L	4/8/05	4/8/05
EPA 8260B	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/8/05	4/8/05
EPA 8260B	Bromoform	Not detected	0.5	0.14	ug/L	4/8/05	4/8/05
EPA 8260B	Bromomethane	Not detected	1	0.24	ug/L	4/8/05	4/8/05
EPA 8260B	Carbon disulfide	Not detected	0.5	0.2	ug/L	4/8/05	4/8/05
EPA 8260B	Carbon tetrachloride	Not detected	0.5	0.10	ug/L	4/8/05	4/8/05
EPA 8260B	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/8/05	4/8/05
EPA 8260B	Chloroethane	Not detected	0.5	0.21	ug/L	4/8/05	4/8/05
EPA 8260B	Chloroform	Not detected	0.5	0.16	ug/L	4/8/05	4/8/05
EPA 8260B	Chloromethane	Not detected	0.5	0.31	ug/L	4/8/05	4/8/05
EPA 8260B	cis-1,2-Dichloroethene	Not detected	0.5	0.16	ug/L	4/8/05	4/8/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/8/05	4/8/05
EPA 8260B	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/8/05	4/8/05
EPA 8260B	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/8/05	4/8/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/8/05	4/8/05
EPA 8260B	Methylene chloride	0.38 J	5	0.35	ug/L	4/8/05	4/8/05
EPA 8260B	Styrene	Not detected	0.5	0.25	ug/L	4/8/05	4/8/05
EPA 8260B	Tetrachloroethene	Not detected	0.5	0.15	ug/L	4/8/05	4/8/05
EPA 8260B	Toluene	Not detected	0.5	0.17	ug/L	4/8/05	4/8/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	0.5	0.19	ug/L	4/8/05	4/8/05

J = Estimated value, below quantitation limit.

Run #: 0407N17  
Instrument: Neo  
Sequence: N050407  
Dilution Factor: 1  
Initials: LF

Printed: 4/8/05 10:10:19 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-310

Sample Collection Date: 4/7/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47052

APPL ID: AX16951

QCG: \$86TTW-050407AN-85462

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/8/05	4/8/05
EPA 8260B	Trichloroethene	Not detected	0.5	0.16	ug/L	4/8/05	4/8/05
EPA 8260B	Vinyl Acetate	Not detected	5	0.31	ug/L	4/8/05	4/8/05
EPA 8260B	Vinyl chloride	Not detected	0.5	0.23	ug/L	4/8/05	4/8/05
EPA 8260B	Xylenes	Not detected	1.5	0.19	ug/L	4/8/05	4/8/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	78.4	62-139		%	4/8/05	4/8/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	91.2	75-125		%	4/8/05	4/8/05
EPA 8260B	Surrogate recovery: Toluene-d8	91.4	75-125		%	4/8/05	4/8/05

J = Estimated value, below quantitation limit.

Run #: 0407N17  
Instrument: Neo  
Sequence: N050407  
Dilution Factor: 1  
Initials: LF

Printed: 4/8/05 10:19 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-311

Sample Collection Date: 4/7/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47052

APPL ID: AX16952

QCG: S86TTS-050407BC-85504

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 23.8 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	7	1.1	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	7	1.6	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	7	0.63	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,1-Dichloroethane	Not detected	7	1.5	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,1-Dichloroethene	12	7	1.0	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,2-Dichloroethane	Not detected	7	0.94	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,2-Dichloropropane	Not detected	7	0.81	ug/Kg	4/8/05	4/8/05
EPA 8260B	2-Butanone	Not detected	66	0.93	ug/Kg	4/8/05	4/8/05
EPA 8260B	2-Hexanone	Not detected	66	0.21	ug/Kg	4/8/05	4/8/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	66	1.2	ug/Kg	4/8/05	4/8/05
EPA 8260B	Acetone	16 B J	130	3.7	ug/Kg	4/8/05	4/8/05
EPA 8260B	Benzene	Not detected	7	0.83	ug/Kg	4/8/05	4/8/05
EPA 8260B	Bromodichloromethane	Not detected	7	0.91	ug/Kg	4/8/05	4/8/05
EPA 8260B	Bromoform	Not detected	7	1.0	ug/Kg	4/8/05	4/8/05
EPA 8260B	Bromomethane	Not detected	13	2.1	ug/Kg	4/8/05	4/8/05
EPA 8260B	Carbon disulfide	Not detected	7	1.4	ug/Kg	4/8/05	4/8/05
EPA 8260B	Carbon tetrachloride	Not detected	7	1.0	ug/Kg	4/8/05	4/8/05
EPA 8260B	Chlorobenzene	Not detected	7	0.64	ug/Kg	4/8/05	4/8/05
EPA 8260B	Chloroethane	Not detected	7	2.0	ug/Kg	4/8/05	4/8/05
EPA 8260B	Chloroform	Not detected	7	1.9	ug/Kg	4/8/05	4/8/05
EPA 8260B	Chloromethane	Not detected	7	2.4	ug/Kg	4/8/05	4/8/05
EPA 8260B	cis-1,2-Dichloroethene	2600 E	7	1.4	ug/Kg	4/8/05	4/8/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	7	0.62	ug/Kg	4/8/05	4/8/05
EPA 8260B	Dibromochloromethane	Not detected	7	1.1	ug/Kg	4/8/05	4/8/05
EPA 8260B	Ethylbenzene	Not detected	7	0.84	ug/Kg	4/8/05	4/8/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	7	1.2	ug/Kg	4/8/05	4/8/05
EPA 8260B	Methylene chloride	Not detected	66	6.0	ug/Kg	4/8/05	4/8/05
EPA 8260B	Styrene	Not detected	7	0.91	ug/Kg	4/8/05	4/8/05
EPA 8260B	Tetrachloroethane	52	7	0.71	ug/Kg	4/8/05	4/8/05
EPA 8260B	Toluene	Not detected	7	0.85	ug/Kg	4/8/05	4/8/05
EPA 8260B	trans-1,2-Dichloroethene	12	7	1.8	ug/Kg	4/8/05	4/8/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0407C37  
Instrument: Chico  
Sequence: C050407B  
Dilution Factor: 1  
Initials: LF

Printed: 4/11/05 3:52:25 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-311

Sample Collection Date: 4/7/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47052

APPL ID: AX16952

QCG: \$86TTS-050407BC-85504

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	7	0.56	ug/Kg	4/8/05	4/8/05
EPA 8260B	Trichloroethene	24	7	0.93	ug/Kg	4/8/05	4/8/05
EPA 8260B	Vinyl Acetate	Not detected	66	1.3	ug/Kg	4/8/05	4/8/05
EPA 8260B	Vinyl chloride	Not detected	7	2.2	ug/Kg	4/8/05	4/8/05
EPA 8260B	Xylenes	Not detected	20	0.89	ug/Kg	4/8/05	4/8/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	106	52-149		%	4/8/05	4/8/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	101	65-135		%	4/8/05	4/8/05
EPA 8260B	Surrogate recovery: Toluene-d8	93.4	65-135		%	4/8/05	4/8/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.  
B = The analyte was found in a method blank, as well as in the sample.

Run #: 0407C37  
Instrument: Chico  
Sequence: C050407B  
Dilution Factor: 1  
Initials: LF

Printed: 4/11/05 3:52:25 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Blenkowski

Project: 1990.0860 WATS Bldg 88 Moffett Airfield

ARF: 47052

Sample ID: 86-WOPT-311

APPL ID: AX16952

Sample Collection Date: 4/7/05

QCG: \$86TTD-050410AN-85563

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 23.8 Percent Moisture.)							
EPA 8260B-	cis-1,2-Dichloroethene	3000	33	10	ug/Kg	4/11/05	4/11/05
EPA 8260B-	Surrogate recovery: 1,2-Dichloroethane	80.5	52-149		%	4/11/05	4/11/05
EPA 8260B-	Surrogate recovery: 4-Bromofluorobenz	90.5	65-135		%	4/11/05	4/11/05
EPA 8260B-	Surrogate recovery: Toluene-d8	92.2	65-135		%	4/11/05	4/11/05

Run #: 0410N07  
Instrument: Neo  
Sequence: N050407  
Dilution Factor: 50  
Initials: LF

Printed 4/12/05 9:42:07 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.0860 WATS Bldg 88 Moffett Airfield

ARF: 47052

Sample ID: 86-WOPT-312

APPL ID: AX16953

Sample Collection Date: 4/7/05

QCG: S86TTS-050407AC-85459

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 22.2 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	1.0	ug/Kg	4/7/05	4/7/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.6	ug/Kg	4/7/05	4/7/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.62	ug/Kg	4/7/05	4/7/05
EPA 8260B	1,1-Dichloroethane	3.1 J	6	1.4	ug/Kg	4/7/05	4/7/05
EPA 8260B	1,1-Dichloroethene	4.1 J	6	1.0	ug/Kg	4/7/05	4/7/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.93	ug/Kg	4/7/05	4/7/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.80	ug/Kg	4/7/05	4/7/05
EPA 8260B	2-Butanone	Not detected	64	0.91	ug/Kg	4/7/05	4/7/05
EPA 8260B	2-Hexanone	Not detected	64	0.21	ug/Kg	4/7/05	4/7/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	64	1.2	ug/Kg	4/7/05	4/7/05
EPA 8260B	Acetone	7.6 B J	130	3.6	ug/Kg	4/7/05	4/7/05
EPA 8260B	Benzene	Not detected	6	0.81	ug/Kg	4/7/05	4/7/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.89	ug/Kg	4/7/05	4/7/05
EPA 8260B	Bromoform	Not detected	6	1.0	ug/Kg	4/7/05	4/7/05
EPA 8260B	Bromomethane	Not detected	13	2.1	ug/Kg	4/7/05	4/7/05
EPA 8260B	Carbon disulfide	Not detected	6	1.4	ug/Kg	4/7/05	4/7/05
EPA 8260B	Carbon tetrachloride	Not detected	6	1.0	ug/Kg	4/7/05	4/7/05
EPA 8260B	Chlorobenzene	Not detected	6	0.63	ug/Kg	4/7/05	4/7/05
EPA 8260B	Chloroethane	Not detected	6	2.0	ug/Kg	4/7/05	4/7/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	4/7/05	4/7/05
EPA 8260B	Chloromethane	Not detected	6	2.3	ug/Kg	4/7/05	4/7/05
EPA 8260B	cis-1,2-Dichloroethene	50	6	1.4	ug/Kg	4/7/05	4/7/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.60	ug/Kg	4/7/05	4/7/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.1	ug/Kg	4/7/05	4/7/05
EPA 8260B	Ethylbenzene	Not detected	6	0.82	ug/Kg	4/7/05	4/7/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/7/05	4/7/05
EPA 8260B	Methylene chloride	Not detected	64	5.9	ug/Kg	4/7/05	4/7/05
EPA 8260B	Styrene	Not detected	6	0.89	ug/Kg	4/7/05	4/7/05
EPA 8260B	Tetrachloroethene	460 E	6	0.69	ug/Kg	4/7/05	4/7/05
EPA 8260B	Toluene	Not detected	6	0.84	ug/Kg	4/7/05	4/7/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.7	ug/Kg	4/7/05	4/7/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0407C19  
Instrument: Chico  
Sequence: C050407B  
Dilution Factor: 1  
Initials: LF

Printed: 4/8/05 10:09:36 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-312

Sample Collection Date: 4/7/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47052

APPL ID: AX16953

QCG: \$86TTS-050407AC-85459

Method	Analyte	Result	PCL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.55	ug/Kg	4/7/05	4/7/05
EPA 8260B	Trichloroethene	300 E	6	0.91	ug/Kg	4/7/05	4/7/05
EPA 8260B	Vinyl Acetate	Not detected	64	1.3	ug/Kg	4/7/05	4/7/05
EPA 8260B	Vinyl chloride	Not detected	6	2.2	ug/Kg	4/7/05	4/7/05
EPA 8260B	Xylenes	Not detected	19	0.87	ug/Kg	4/7/05	4/7/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	109	52-149	%		4/7/05	4/7/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	104	65-135	%		4/7/05	4/7/05
EPA 8260B	Surrogate recovery: Toluene-d8	98.2	65-135	%		4/7/05	4/7/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

3 = The analyte was found in a method blank, as well as in the sample.

Run #: 0407C19  
Instrument: Chico  
Sequence: C050407B  
Dilution Factor: 1  
Initials: LF

Printed: 4/8/05 10:09:37 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski  
Project: 1990.0860 WATS Bldg 88 Moffett Airfield

ARF: 47052

Sample ID: 86-WOPT-312

APPL ID: AX16953

Sample Collection Date: 4/7/05

QCG: \$86TTD-050408BN-85562

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 22.2 Percent Moisture.)							
EPA 8260B-	Tetrachloroethene	1600	32	9.6	ug/Kg	4/9/05	4/9/05
EPA 8260B-	Trichloroethene	560	32	10	ug/Kg	4/9/05	4/9/05
EPA 8260B-	Surrogate recovery: 1,2-Dichloroethane	83.2	52-149		%	4/9/05	4/9/05
EPA 8260B-	Surrogate recovery: 4-Bromofluorobenz	107	65-135		%	4/9/05	4/9/05
EPA 8260B-	Surrogate recovery: Toluene-d8	104	65-135		%	4/9/05	4/9/05

**AMENDED PAGE**

Run #: 0408N27  
Instrument: Neo  
Sequence: N050407  
Dilution Factor: 50  
Initials: LF

Printed: 5/27/05 8:52:12 AM  
APPL-F1-SC-MCRes/MCPOL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-312

Sample Collection Date: 4/7/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47052

APPL ID: AX16953

QCG: \$86TTD-050408BN-85562

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 22.2 Percent Moisture.)							
EPA 8260B-	Tetrachloroethene	1800	32	9.6	ug/Kg	4/9/05	4/9/05
EPA 8260B-	Trichloroethene	650	32	10	ug/Kg	4/9/05	4/9/05
EPA 8260B-	Surrogate recovery: 1,2-Dichloroethane	71.1	52-149		%	4/9/05	4/9/05
EPA 8260B-	Surrogate recovery: 4-Bromofluorobenz	91.8	65-135		%	4/9/05	4/9/05
EPA 8260B-	Surrogate recovery: Toluene-d8	88.9	65-135		%	4/9/05	4/9/05

Run #: 0408N27  
Instrument: Neo  
Sequence: N050407  
Dilution Factor: 50  
Initials: LF

Printed 4/12/05 9:42:07 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-313

Sample Collection Date: 4/7/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47052

APPL ID: AX16954

CCG: S86TTS-050407AC-85459

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 17.7 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	0.98	ug/Kg	4/7/05	4/7/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.5	ug/Kg	4/7/05	4/7/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.58	ug/Kg	4/7/05	4/7/05
EPA 8260B	1,1-Dichloroethane	Not detected	6	1.4	ug/Kg	4/7/05	4/7/05
EPA 8260B	1,1-Dichloroethene	8.1	6	0.96	ug/Kg	4/7/05	4/7/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.87	ug/Kg	4/7/05	4/7/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.75	ug/Kg	4/7/05	4/7/05
EPA 8260B	2-Butanone	Not detected	61	0.86	ug/Kg	4/7/05	4/7/05
EPA 8260B	2-Hexanone	Not detected	61	0.19	ug/Kg	4/7/05	4/7/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	61	1.1	ug/Kg	4/7/05	4/7/05
EPA 8260B	Acetone	9.7 B J	120	3.4	ug/Kg	4/7/05	4/7/05
EPA 8260B	Benzene	Not detected	6	0.77	ug/Kg	4/7/05	4/7/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.84	ug/Kg	4/7/05	4/7/05
EPA 8260B	Bromoform	Not detected	6	0.97	ug/Kg	4/7/05	4/7/05
EPA 8260B	Bromomethane	Not detected	12	1.9	ug/Kg	4/7/05	4/7/05
EPA 8260B	Carbon disulfide	Not detected	6	1.3	ug/Kg	4/7/05	4/7/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.97	ug/Kg	4/7/05	4/7/05
EPA 8260B	Chlorobenzene	Not detected	6	0.60	ug/Kg	4/7/05	4/7/05
EPA 8260B	Chloroethane	Not detected	6	1.9	ug/Kg	4/7/05	4/7/05
EPA 8260B	Chloroform	Not detected	6	1.7	ug/Kg	4/7/05	4/7/05
EPA 8260B	Chloromethane	Not detected	6	2.2	ug/Kg	4/7/05	4/7/05
EPA 8260B	cis-1,2-Dichloroethene	1600 E	6	1.3	ug/Kg	4/7/05	4/7/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.57	ug/Kg	4/7/05	4/7/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.0	ug/Kg	4/7/05	4/7/05
EPA 8260B	Ethylbenzene	Not detected	6	0.78	ug/Kg	4/7/05	4/7/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/7/05	4/7/05
EPA 8260B	Methylene chloride	Not detected	61	5.6	ug/Kg	4/7/05	4/7/05
EPA 8260B	Styrene	Not detected	6	0.84	ug/Kg	4/7/05	4/7/05
EPA 8260B	Tetrachloroethene	280 E	6	0.66	ug/Kg	4/7/05	4/7/05
EPA 8260B	Toluene	Not detected	6	0.79	ug/Kg	4/7/05	4/7/05
EPA 8260B	trans-1,2-Dichloroethene	7.3	6	1.6	ug/Kg	4/7/05	4/7/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0407C20  
Instrument: Chico  
Sequence: C050407B  
Dilution Factor: 1  
Initials: LF

Printed: 4/8/05 10:09:37 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.0860 WATS Bldg 88 Moffett Airfield

ARF: 47052

Sample ID: 86-WOPT-313

APPL ID: AX16954

Sample Collection Date: 4/7/05

QCG: \$86TTS-050407AC-85459

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.52	ug/Kg	4/7/05	4/7/05
EPA 8260B	Trichloroethene	260 E	6	0.86	ug/Kg	4/7/05	4/7/05
EPA 8260B	Vinyl Acetate	Not detected	61	1.2	ug/Kg	4/7/05	4/7/05
EPA 8260B	Vinyl chloride	Not detected	6	2.0	ug/Kg	4/7/05	4/7/05
EPA 8260B	Xylenes	Not detected	18	0.83	ug/Kg	4/7/05	4/7/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	113	52-149		%	4/7/05	4/7/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	109	65-135		%	4/7/05	4/7/05
EPA 8260B	Surrogate recovery: Toluene-d8	97.1	65-135		%	4/7/05	4/7/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0407C20  
Instrument: Chico  
Sequence: C050407B  
Dilution Factor: 1  
Initials: LF

Printed 4/8/05 10:09:37 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-313

Sample Collection Date: 4/7/05

ARF: 47052

APPL ID: AX16954

QCG: \$86TTD-050408BN-85562

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 17.7 Percent Moisture.)							
EPA 8260B-	cis-1,2-Dichloroethene	3100	30	9.7	ug/Kg	4/9/05	4/9/05
EPA 8260B-	Tetrachloroethene	2300	30	9.1	ug/Kg	4/9/05	4/9/05
EPA 8260B-	Trichloroethene	910	30	9.7	ug/Kg	4/9/05	4/9/05
EPA 8260B-	Surrogate recovery: 1,2-Dichloroethane	79.9	52-149		%	4/9/05	4/9/05
EPA 8260B-	Surrogate recovery: 4-Bromofluorobenz	97.9	65-135		%	4/9/05	4/9/05
EPA 8260B-	Surrogate recovery: Toluene-d8	100	65-135		%	4/9/05	4/9/05

**AMENDED PAGE**

Run #: 0408N28  
Instrument: Neo  
Sequence: N050407  
Dilution Factor: 50  
Initials: LF

Printed: 5/27/05 8:52:12 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990 0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-313

Sample Collection Date: 04/07/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47052

APPL ID: AX16954

QCG: \$86TTD-050408BN-85562

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 17.7 Percent Moisture.)							
EPA 8260B-	cis-1,2-Dichloroethene	3300	30	9.7	ug/Kg	04/09/05	04/09/05
EPA 8260B-	Tetrachloroethene	2400	30	9.1	ug/Kg	04/09/05	04/09/05
EPA 8260B-	Trichloroethene	980	30	9.7	ug/Kg	04/09/05	04/09/05
EPA 8260B-	Surrogate recovery: 1,2-Dichloroethane	74.5	52-149		%	04/09/05	04/09/05
EPA 8260B-	Surrogate recovery: 4-Bromofluorobenz	91.3	65-135		%	04/09/05	04/09/05
EPA 8260B-	Surrogate recovery: Toluene-d8	93.3	65-135		%	04/09/05	04/09/05

Run #: 0408N28  
Instrument: Neo  
Sequence: N050407  
Dilution Factor: 50  
Initials: LF

Printed: 04/14/05 1:49:34 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-314

Sample Collection Date: 4/7/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47052

APPL ID: AX16955

QCQ: \$86TTS-050407AC-85459

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 20.7 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	1.0	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.6	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.61	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,1-Dichloroethane	Not detected	6	1.4	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,1-Dichloroethene	3.5 J	6	1.0	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.91	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.78	ug/Kg	4/8/05	4/8/05
EPA 8260B	2-Butanone	Not detected	63	0.90	ug/Kg	4/8/05	4/8/05
EPA 8260B	2-Hexanone	Not detected	63	0.20	ug/Kg	4/8/05	4/8/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	63	1.2	ug/Kg	4/8/05	4/8/05
EPA 8260B	Acetone	8.0 B J	130	3.5	ug/Kg	4/8/05	4/8/05
EPA 8260B	Benzene	Not detected	6	0.79	ug/Kg	4/8/05	4/8/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.87	ug/Kg	4/8/05	4/8/05
EPA 8260B	Bromoforn	Not detected	6	1.0	ug/Kg	4/8/05	4/8/05
EPA 8260B	Bromomethane	Not detected	13	2.0	ug/Kg	4/8/05	4/8/05
EPA 8260B	Carbon disulfide	Not detected	6	1.4	ug/Kg	4/8/05	4/8/05
EPA 8260B	Carbon tetrachloride	Not detected	6	1.0	ug/Kg	4/8/05	4/8/05
EPA 8260B	Chlorobenzene	Not detected	6	0.62	ug/Kg	4/8/05	4/8/05
EPA 8260B	Chloroethane	Not detected	6	2.0	ug/Kg	4/8/05	4/8/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	4/8/05	4/8/05
EPA 8260B	Chloromethane	Not detected	6	2.3	ug/Kg	4/8/05	4/8/05
EPA 8260B	cis-1,2-Dichloroethene	190	6	1.4	ug/Kg	4/8/05	4/8/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.59	ug/Kg	4/8/05	4/8/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.1	ug/Kg	4/8/05	4/8/05
EPA 8260B	Ethylbenzene	Not detected	6	0.81	ug/Kg	4/8/05	4/8/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/8/05	4/8/05
EPA 8260B	Methylene chloride	Not detected	63	5.8	ug/Kg	4/8/05	4/8/05
EPA 8260B	Styrene	Not detected	6	0.87	ug/Kg	4/8/05	4/8/05
EPA 8260B	Tetrachloroethene	270 E	6	0.68	ug/Kg	4/8/05	4/8/05
EPA 8260B	Toluene	Not detected	6	0.82	ug/Kg	4/8/05	4/8/05
EPA 8260B	trans-1,2-Dichloroethene	3.9 J	6	1.7	ug/Kg	4/8/05	4/8/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0407C21  
Instrument: Chico  
Sequence: C050407B  
Dilution Factor: 1  
Initials: LF

Printed 4/8/05 10:09:37 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-314

Sample Collection Date: 4/7/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47052

APPL ID: AX16955

QCG: \$86TTS-050407AC-85459

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.54	ug/Kg	4/8/05	4/8/05
EPA 8260B	Trichloroethene	420 E	6	0.90	ug/Kg	4/8/05	4/8/05
EPA 8260B	Vinyl Acetate	Not detected	63	1.3	ug/Kg	4/8/05	4/8/05
EPA 8260B	Vinyl chloride	Not detected	6	2.1	ug/Kg	4/8/05	4/8/05
EPA 8260B	Xylenes	Not detected	19	0.86	ug/Kg	4/8/05	4/8/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	111	52-149		%	4/8/05	4/8/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	99.1	65-135		%	4/8/05	4/8/05
EPA 8260B	Surrogate recovery: Toluene-d8	91.8	65-135		%	4/8/05	4/8/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0407C21  
Instrument: Chico  
Sequence: C050407B  
Dilution Factor: 1  
Initials: LF

Printed: 4/8/05 10:09:37 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-314

Sample Collection Date: 4/7/05

ARF: 47052

APPL ID: AX16955

QCG: \$86TTD-050408BN-85562

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 20.7 Percent Moisture.)							
EPA 8260B-	Tetrachloroethene	1300	32	9.5	ug/Kg	4/9/05	4/9/05
EPA 8260B-	Trichloroethene	1100	32	10	ug/Kg	4/9/05	4/9/05
EPA 8260B-	Surrogate recovery: 1,2-Dichloroethane	90.5	52-149		%	4/9/05	4/9/05
EPA 8260B-	Surrogate recovery: 4-Bromofluorobenz	105	65-135		%	4/9/05	4/9/05
EPA 8260B-	Surrogate recovery: Toluene-d8	98.7	65-135		%	4/9/05	4/9/05

AMENDED PAGE

Run #: 0408N29  
Instrument: Neo  
Sequence: N050407  
Dilution Factor: 50  
Initials: LF

Printed: 5/27/05 8:52:12 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-314

Sample Collection Date: 4/7/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47052

APPL ID: AX16955

QCG: \$86TTD-050408BN-85562

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 20.7 Percent Moisture.)							
EPA 8260B-	Tetrachloroethene	1500	32	9.5	ug/Kg	4/9/05	4/9/05
EPA 8260B-	Trichloroethene	1200	32	10	ug/Kg	4/9/05	4/9/05
EPA 8260B-	Surrogate recovery: 1,2-Dichloroethane	79.9	52-149		%	4/9/05	4/9/05
EPA 8260B-	Surrogate recovery: 4-Bromofluorobenz	91.6	65-135		%	4/9/05	4/9/05
EPA 8260B-	Surrogate recovery: Toluene-d8	87.2	65-135		%	4/9/05	4/9/05

Run #: 0408N29  
Instrument: Neo  
Sequence: N050407  
Dilution Factor: 50  
Initials: LF

Printed: 4/12/05 9:42:07 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-315

Sample Collection Date: 4/7/05

ARF: 47052

APPL ID: AX16956

QCG: \$86TTS-050407AC-85459

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 14.3 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	0.95	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.4	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.56	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,1-Dichloroethane	Not detected	6	1.3	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,1-Dichloroethene	2.6 J	6	0.92	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.84	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.72	ug/Kg	4/8/05	4/8/05
EPA 8260B	2-Butanone	Not detected	58	0.83	ug/Kg	4/8/05	4/8/05
EPA 8260B	2-Hexanone	Not detected	58	0.19	ug/Kg	4/8/05	4/8/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	58	1.1	ug/Kg	4/8/05	4/8/05
EPA 8260B	Acetone	5.3 B J	120	3.3	ug/Kg	4/8/05	4/8/05
EPA 8260B	Benzene	Not detected	6	0.74	ug/Kg	4/8/05	4/8/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.81	ug/Kg	4/8/05	4/8/05
EPA 8260B	Bromoform	Not detected	6	0.93	ug/Kg	4/8/05	4/8/05
EPA 8260B	Bromomethane	Not detected	12	1.9	ug/Kg	4/8/05	4/8/05
EPA 8260B	Carbon disulfide	Not detected	6	1.3	ug/Kg	4/8/05	4/8/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.93	ug/Kg	4/8/05	4/8/05
EPA 8260B	Chlorobenzene	Not detected	6	0.57	ug/Kg	4/8/05	4/8/05
EPA 8260B	Chloroethane	Not detected	6	1.8	ug/Kg	4/8/05	4/8/05
EPA 8260B	Chloroform	Not detected	6	1.7	ug/Kg	4/8/05	4/8/05
EPA 8260B	Chloromethane	Not detected	6	2.1	ug/Kg	4/8/05	4/8/05
EPA 8260B	cis-1,2-Dichloroethene	160	6	1.2	ug/Kg	4/8/05	4/8/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.55	ug/Kg	4/8/05	4/8/05
EPA 8260B	Dibromochloromethane	Not detected	6	0.99	ug/Kg	4/8/05	4/8/05
EPA 8260B	Ethylbenzene	Not detected	6	0.75	ug/Kg	4/8/05	4/8/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.0	ug/Kg	4/8/05	4/8/05
EPA 8260B	Methylene chloride	Not detected	58	5.3	ug/Kg	4/8/05	4/8/05
EPA 8260B	Styrene	Not detected	6	0.81	ug/Kg	4/8/05	4/8/05
EPA 8260B	Tetrachloroethene	190	6	0.63	ug/Kg	4/8/05	4/8/05
EPA 8260B	Toluene	Not detected	6	0.76	ug/Kg	4/8/05	4/8/05
EPA 8260B	trans-1,2-Dichloroethene	2.9 J	6	1.6	ug/Kg	4/8/05	4/8/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0407C22  
Instrument: Chico  
Sequence: C050407B  
Dilution Factor: 1  
Initials: LF

Printed: 4/8/05 10:09:37 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-315

Sample Collection Date: 4/7/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47052

APPL ID: AX16956

QCG: S86TTS-050407AC-85459

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.50	ug/Kg	4/8/05	4/8/05
EPA 8260B	Trichloroethene	270 E	6	0.83	ug/Kg	4/8/05	4/8/05
EPA 8260B	Vinyl Acetate	Not detected	58	1.2	ug/Kg	4/8/05	4/8/05
EPA 8260B	Vinyl chloride	Not detected	6	2.0	ug/Kg	4/8/05	4/8/05
EPA 8260B	Xylenes	Not detected	18	0.79	ug/Kg	4/8/05	4/8/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	110	52-149		%	4/8/05	4/8/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	100	65-135		%	4/8/05	4/8/05
EPA 8260B	Surrogate recovery: Toluene-d8	88.5	65-135		%	4/8/05	4/8/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0407C22  
Instrument: Chico  
Sequence: C050407B  
Dilution Factor: 1  
Initials: LF

Printed: 4/8/05 10:09:37 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-315

Sample Collection Date: 4/7/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47052

APPL ID: AX16956

QCG: \$86TTD-050408BN-85562

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 14.3 Percent Moisture.)							
EPA 8260B-	cis-1,2-Dichloroethene	420	29	9.3	ug/Kg	4/9/05	4/9/05
EPA 8260B-	Tetrachloroethene	2000	29	8.8	ug/Kg	4/9/05	4/9/05
EPA 8260B-	Trichloroethene	1400	29	9.3	ug/Kg	4/9/05	4/9/05
EPA 8260B-	Surrogate recovery: 1,2-Dichloroethane	80.2	52-149		%	4/9/05	4/9/05
EPA 8260B-	Surrogate recovery: 4-Bromofluorobenz	95.7	65-135		%	4/9/05	4/9/05
EPA 8260B-	Surrogate recovery: Toluene-d8	93.7	65-135		%	4/9/05	4/9/05

**AMENDED PAGE**

Run #: 0408N30  
Instrument: Neo  
Sequence: N050407  
Dilution Factor: 50  
Initials: LF

Printed: 5/27/05 8:52:12 AM  
APPL-F1-SC-MCR&MCPQL-REG MDLs



**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-315

Sample Collection Date: 4/7/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47052

APPL ID: AX16956

QCG: \$86TTD-050408BN-85562

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 14.3 Percent Moisture.)							
EPA 8260B-	cis-1,2-Dichloroethene	420	29	9.3	ug/Kg	4/9/05	4/9/05
EPA 8260B-	Tetrachloroethene	2000	29	8.8	ug/Kg	4/9/05	4/9/05
EPA 8260B-	Trichloroethene	1400	29	9.3	ug/Kg	4/9/05	4/9/05
EPA 8260B-	Surrogate recovery: 1,2-Dichloroethane	77.5	52-149		%	4/9/05	4/9/05
EPA 8260B-	Surrogate recovery: 4-Bromofluorobenz	92.5	65-135		%	4/9/05	4/9/05
EPA 8260B-	Surrogate recovery: Toluene-d8	90.5	65-135		%	4/9/05	4/9/05

Run #: 0408N30  
Instrument: Neo  
Sequence: N050407  
Dilution Factor: 50  
Initials: LF

Printed 4/13/05 8:59:50 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-316

Sample Collection Date: 4/7/05

ARF: 47052

APPL ID: AX16957

QCG: \$86TTS-050407AC-85459

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 23.0 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	7	1.0	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	7	1.6	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	7	0.62	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,1-Dichloroethane	Not detected	7	1.5	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,1-Dichloroethene	3.9 J	7	1.0	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,2-Dichloroethane	Not detected	7	0.94	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,2-Dichloropropane	Not detected	7	0.81	ug/Kg	4/8/05	4/8/05
EPA 8260B	2-Butanone	Not detected	65	0.92	ug/Kg	4/8/05	4/8/05
EPA 8260B	2-Hexanone	Not detected	65	0.21	ug/Kg	4/8/05	4/8/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	65	1.2	ug/Kg	4/8/05	4/8/05
EPA 8260B	Acetone	10 B J	130	3.6	ug/Kg	4/8/05	4/8/05
EPA 8260B	Benzene	Not detected	7	0.82	ug/Kg	4/8/05	4/8/05
EPA 8260B	Bromodichloromethane	Not detected	7	0.90	ug/Kg	4/8/05	4/8/05
EPA 8260B	Bromoform	Not detected	7	1.0	ug/Kg	4/8/05	4/8/05
EPA 8260B	Bromomethane	Not detected	13	2.1	ug/Kg	4/8/05	4/8/05
EPA 8260B	Carbon disulfide	Not detected	7	1.4	ug/Kg	4/8/05	4/8/05
EPA 8260B	Carbon tetrachloride	Not detected	7	1.0	ug/Kg	4/8/05	4/8/05
EPA 8260B	Chlorobenzene	Not detected	7	0.64	ug/Kg	4/8/05	4/8/05
EPA 8260B	Chloroethane	Not detected	7	2.0	ug/Kg	4/8/05	4/8/05
EPA 8260B	Chloroform	Not detected	7	1.9	ug/Kg	4/8/05	4/8/05
EPA 8260B	Chloromethane	Not detected	7	2.4	ug/Kg	4/8/05	4/8/05
EPA 8260B	cis-1,2-Dichloroethene	470 E	7	1.4	ug/Kg	4/8/05	4/8/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	7	0.61	ug/Kg	4/8/05	4/8/05
EPA 8260B	Dibromochloromethane	Not detected	7	1.1	ug/Kg	4/8/05	4/8/05
EPA 8260B	Ethylbenzene	Not detected	7	0.83	ug/Kg	4/8/05	4/8/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	7	1.2	ug/Kg	4/8/05	4/8/05
EPA 8260B	Methylene chloride	Not detected	65	6.0	ug/Kg	4/8/05	4/8/05
EPA 8260B	Styrene	Not detected	7	0.90	ug/Kg	4/8/05	4/8/05
EPA 8260B	Tetrachloroethene	4.6 J	7	0.70	ug/Kg	4/8/05	4/8/05
EPA 8260B	Toluene	Not detected	7	0.84	ug/Kg	4/8/05	4/8/05
EPA 8260B	trans-1,2-Dichloroethene	4.8 J	7	1.8	ug/Kg	4/8/05	4/8/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0407C23  
Instrument: Chico  
Sequence: C050407B  
Dilution Factor: 1  
Initials: LF

Printed 4/8/05 10:09:37 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-316

Sample Collection Date: 4/7/05

ARF: 47052

APPL ID: AX16957

QCG: \$86TTS-050407AC-85459

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	7	0.56	ug/Kg	4/8/05	4/8/05
EPA 8260B	Trichloroethene	4.5 J	7	0.92	ug/Kg	4/8/05	4/8/05
EPA 8260B	Vinyl Acetate	Not detected	65	1.3	ug/Kg	4/8/05	4/8/05
EPA 8260B	Vinyl chloride	Not detected	7	2.2	ug/Kg	4/8/05	4/8/05
EPA 8260B	Xylenes	Not detected	19	0.88	ug/Kg	4/8/05	4/8/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	113	52-149		%	4/8/05	4/8/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	102	65-135		%	4/8/05	4/8/05
EPA 8260B	Surrogate recovery: Toluene-d8	94.2	65-135		%	4/8/05	4/8/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0407C23  
Instrument: Chico  
Sequence: C050407B  
Dilution Factor: 1  
Initials: LF

Printed: 4/8/05 10 09:37 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-316

Sample Collection Date: 4/7/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47052

APPL ID: AX16957

QCG: \$86TTD-050408BN-85562

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 23.0 Percent Moisture.)							
EPA 8260B-	cis-1,2-Dichloroethene	560	32	10	ug/Kg	4/9/05	4/9/05
EPA 8260B-	Surrogate recovery: 1,2-Dichloroethane	92.6	52-149		%	4/9/05	4/9/05
EPA 8260B-	Surrogate recovery: 4-Bromofluorobenz	106	65-135		%	4/9/05	4/9/05
EPA 8260B-	Surrogate recovery: Toluene-d8	102	65-135		%	4/9/05	4/9/05

**AMENDED PAGE**

Run #: 0408N31  
Instrument: Neo  
Sequence: N050407  
Dilution Factor: 50  
Initials: LF

Printed: 5/27/05 8:52:12 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-316

Sample Collection Date: 4/7/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47052

APPL ID: AX16957

QCG: \$96TTD-050408BN-85562

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 23.0 Percent Moisture.)							
EPA 8260B-	cis-1,2-Dichloroethene	630	32	10	ug/Kg	4/9/05	4/9/05
EPA 8260B-	Surrogate recovery: 1,2-Dichloroethane	83.1	52-149		%	4/9/05	4/9/05
EPA 8260B-	Surrogate recovery: 4-Bromofluorobenz	95.0	65-135		%	4/9/05	4/9/05
EPA 8260B-	Surrogate recovery: Toluene-d8	91.2	65-135		%	4/9/05	4/9/05

Run #: 0408N31  
Instrument: Neo  
Sequence: N050407  
Dilution Factor: 50  
Initials: LF

Printed: 4/12/05 9:42:07 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-317

Sample Collection Date: 4/7/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47052

APPL ID: AX16958

QCQ: S86TTS-050407AC-85459

Method	Analyte	Result	POL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 18.5 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	0.99	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.5	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.59	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,1-Dichloroethane	3.1 J	6	1.4	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,1-Dichloroethene	8.1	6	0.97	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.88	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.76	ug/Kg	4/8/05	4/8/05
EPA 8260B	2-Butanone	Not detected	61	0.87	ug/Kg	4/8/05	4/8/05
EPA 8260B	2-Hexanone	Not detected	61	0.20	ug/Kg	4/8/05	4/8/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	61	1.1	ug/Kg	4/8/05	4/8/05
EPA 8260B	Acetone	6.4 B J	120	3.4	ug/Kg	4/8/05	4/8/05
EPA 8260B	Benzene	Not detected	6	0.77	ug/Kg	4/8/05	4/8/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.85	ug/Kg	4/8/05	4/8/05
EPA 8260B	Bromoform	Not detected	6	0.98	ug/Kg	4/8/05	4/8/05
EPA 8260B	Bromomethane	Not detected	12	2.0	ug/Kg	4/8/05	4/8/05
EPA 8260B	Carbon disulfide	Not detected	6	1.3	ug/Kg	4/8/05	4/8/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.98	ug/Kg	4/8/05	4/8/05
EPA 8260B	Chlorobenzene	Not detected	6	0.60	ug/Kg	4/8/05	4/8/05
EPA 8260B	Chloroethane	Not detected	6	1.9	ug/Kg	4/8/05	4/8/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	4/8/05	4/8/05
EPA 8260B	Chloromethane	Not detected	6	2.2	ug/Kg	4/8/05	4/8/05
EPA 8260B	cis-1,2-Dichloroethene	66	6	1.3	ug/Kg	4/8/05	4/8/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.58	ug/Kg	4/8/05	4/8/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.0	ug/Kg	4/8/05	4/8/05
EPA 8260B	Ethylbenzene	Not detected	6	0.79	ug/Kg	4/8/05	4/8/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/8/05	4/8/05
EPA 8260B	Methylene chloride	Not detected	61	5.6	ug/Kg	4/8/05	4/8/05
EPA 8260B	Styrene	Not detected	6	0.85	ug/Kg	4/8/05	4/8/05
EPA 8260B	Tetrachloroethene	15	6	0.66	ug/Kg	4/8/05	4/8/05
EPA 8260B	Toluene	Not detected	6	0.80	ug/Kg	4/8/05	4/8/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.7	ug/Kg	4/8/05	4/8/05

J = Estimated value, below quantitation limit.

≡ = The reported value exceeds linear range.

3 = The analyte was found in a method blank, as well as in the sample.

Run #: 0407C24  
Instrument: Chico  
Sequence: C050407B  
Dilution Factor: 1  
Initials: LF

Printed 4/8/05 10:09:37 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLS

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-317

Sample Collection Date: 4/7/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47052

APPL ID: AX16958

QCG: S86TTS-050407AC-85459

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.53	ug/Kg	4/8/05	4/8/05
EPA 8260B	Trichloroethene	450 E	6	0.87	ug/Kg	4/8/05	4/8/05
EPA 8260B	Vinyl Acetate	Not detected	61	1.2	ug/Kg	4/8/05	4/8/05
EPA 8260B	Vinyl chloride	Not detected	6	2.1	ug/Kg	4/8/05	4/8/05
EPA 8260B	Xylenes	Not detected	18	0.83	ug/Kg	4/8/05	4/8/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	115	52-149		%	4/8/05	4/8/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	100	65-135		%	4/8/05	4/8/05
EPA 8260B	Surrogate recovery: Toluene-d8	93.6	65-135		%	4/8/05	4/8/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.  
B = The analyte was found in a method blank, as well as in the sample.

Run #: 0407C24  
Instrument: Chico  
Sequence: C050407B  
Dilution Factor: 1  
Initials: LF

Printed: 4/8/05 10:09:37 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski  
Project: 1990.0860 WATS Bldg 88 Moffett Airfield

ARF: 47052

Sample ID: 86-WOPT-317

APPL ID: AX16958

Sample Collection Date: 4/7/05

QCG: \$86TTD-050408BN-85562

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 18.5 Percent Moisture.)							
EPA 8260B-	Trichloroethene	320	31	9.8	ug/Kg	4/9/05	4/9/05
EPA 8260B-	Surrogate recovery: 1,2-Dichloroethane	86.9	52-149		%	4/9/05	4/9/05
EPA 8260B-	Surrogate recovery: 4-Bromofluorobenz	104	65-135		%	4/9/05	4/9/05
EPA 8260B-	Surrogate recovery: Toluene-d8	95.0	65-135		%	4/9/05	4/9/05

**AMENDED PAGE**

Run #: 0408N32  
Instrument: Neo  
Sequence: N050407  
Dilution Factor: 50  
Initials: LF

Printed: 5/27/05 8:52:12 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-317

Sample Collection Date: 4/7/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47052

APPL ID: AX16958

QCG: \$86TTD-050408BN-85562

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 18.5 Percent Moisture.)							
EPA 8260B-	Trichloroethene	340	31	9.8	ug/Kg	4/9/05	4/9/05
EPA 8260B-	Surrogate recovery: 1,2-Dichloroethane	81.1	52-149		%	4/9/05	4/9/05
EPA 8260B-	Surrogate recovery: 4-Bromofluorobenz	96.6	65-135		%	4/9/05	4/9/05
EPA 8260B-	Surrogate recovery: Toluene-d8	88.6	65-135		%	4/9/05	4/9/05

Run #: 0408N32  
Instrument: Neo  
Sequence: N050407  
Dilution Factor: 50  
Initials: LF

Printed 4/12/05 9:42:07 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech F/W, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-318

Sample Collection Date: 4/7/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47052

APPL ID: AX16959

QCG: \$86TTS-050407AC-85459

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 17.7 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	0.98	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.5	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.58	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,1-Dichloroethane	3.2 J	6	1.4	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,1-Dichloroethene	15	6	0.96	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.87	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.75	ug/Kg	4/8/05	4/8/05
EPA 8260B	2-Butanone	Not detected	61	0.86	ug/Kg	4/8/05	4/8/05
EPA 8260B	2-Hexanone	Not detected	61	0.19	ug/Kg	4/8/05	4/8/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	61	1.1	ug/Kg	4/8/05	4/8/05
EPA 8260B	Acetone	7.3 B J	120	3.4	ug/Kg	4/8/05	4/8/05
EPA 8260B	Benzene	Not detected	6	0.77	ug/Kg	4/8/05	4/8/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.84	ug/Kg	4/8/05	4/8/05
EPA 8260B	Bromofom	Not detected	6	0.97	ug/Kg	4/8/05	4/8/05
EPA 8260B	Bromomethane	Not detected	12	1.9	ug/Kg	4/8/05	4/8/05
EPA 8260B	Carbon disulfide	Not detected	6	1.3	ug/Kg	4/8/05	4/8/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.97	ug/Kg	4/8/05	4/8/05
EPA 8260B	Chlorobenzene	Not detected	6	0.60	ug/Kg	4/8/05	4/8/05
EPA 8260B	Chloroethane	Not detected	6	1.9	ug/Kg	4/8/05	4/8/05
EPA 8260B	Chloroform	Not detected	6	1.7	ug/Kg	4/8/05	4/8/05
EPA 8260B	Chloromethane	Not detected	6	2.2	ug/Kg	4/8/05	4/8/05
EPA 8260B	cis-1,2-Dichloroethene	30	6	1.3	ug/Kg	4/8/05	4/8/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.57	ug/Kg	4/8/05	4/8/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.0	ug/Kg	4/8/05	4/8/05
EPA 8260B	Ethylbenzene	Not detected	6	0.78	ug/Kg	4/8/05	4/8/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/8/05	4/8/05
EPA 8260B	Methylene chloride	Not detected	61	5.6	ug/Kg	4/8/05	4/8/05
EPA 8260B	Styrene	Not detected	6	0.84	ug/Kg	4/8/05	4/8/05
EPA 8260B	Tetrachloroethene	Not detected	6	0.66	ug/Kg	4/8/05	4/8/05
EPA 8260B	Toluene	Not detected	6	0.79	ug/Kg	4/8/05	4/8/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.6	ug/Kg	4/8/05	4/8/05

J = Estimated value, below quantitation limit.

= = The reported value exceeds linear range.

3 = The analyte was found in a method blank, as well as in the sample.

Run #: 0407C25  
Instrument: Chico  
Sequence: C050407B  
Dilution Factor: 1  
Initials: LF

Printed: 4/8/05 10:09:37 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.0860 WATS Bldg 88 Moffett Airfield

Sample ID: **86-WOPT-318**

Sample Collection Date: 4/7/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47052

APPL ID: **AX16959**

QCG: \$86TTS-050407AC-85459

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.52	ug/Kg	4/8/05	4/8/05
EPA 8260B	Trichloroethene	1900 E	6	0.86	ug/Kg	4/8/05	4/8/05
EPA 8260B	Vinyl Acetate	Not detected	61	1.2	ug/Kg	4/8/05	4/8/05
EPA 8260B	Vinyl chloride	Not detected	6	2.0	ug/Kg	4/8/05	4/8/05
EPA 8260B	Xylenes	Not detected	18	0.83	ug/Kg	4/8/05	4/8/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	107	52-149		%	4/8/05	4/8/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	105	65-135		%	4/8/05	4/8/05
EPA 8260B	Surrogate recovery: Toluene-d8	96.9	65-135		%	4/8/05	4/8/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0407C25  
Instrument: Chico  
Sequence: C050407B  
Dilution Factor: 1  
Initials: LF

Printed: 4/8/05 10:09:37 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Blenkowski

Project: 1990.0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-318

Sample Collection Date: 4/7/05

ARF: 47052

APPL ID: AX16959

QCG: \$86TTD-050408BN-85562

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 17.7 Percent Moisture.)							
EPA 8260B-	Trichloroethene	1500	30	9.7	ug/Kg	4/9/05	4/9/05
EPA 8260B-	Surrogate recovery: 1,2-Dichloroethane	98.2	52-149		%	4/9/05	4/9/05
EPA 8260B-	Surrogate recovery: 4-Bromofluorobenz	107	65-135		%	4/9/05	4/9/05
EPA 8260B-	Surrogate recovery: Toluene-d8	109	65-135		%	4/9/05	4/9/05

**AMENDED PAGE**

Run #: 0408N33  
Instrument: Neo  
Sequence: N050407  
Dilution Factor: 50  
Initials: LF

Printed: 5/27/05 8:52:12 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Brienkowski  
Project: 1990.0860 WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-318**

Sample Collection Date: 4/7/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47052

**APPL ID: AX16959**

QCG: \$85TTD-050408BN-85562

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 17.7 Percent Moisture.)							
EPA 8260B-	Trichloroethene	1700	30	9.7	ug/Kg	4/9/05	4/9/05
EPA 8260B-	Surrogate recovery: 1,2-Dichloroethane	86.0	52-149		%	4/9/05	4/9/05
EPA 8260B-	Surrogate recovery: 4-Bromofluorobenz	94.1	65-135		%	4/9/05	4/9/05
EPA 8260B-	Surrogate recovery: Toluene-d8	95.4	65-135		%	4/9/05	4/9/05

Run #: 0408N33  
Instrument: Neo  
Sequence: N050407  
Dilution Factor: 50  
Initials: LF

Printed: 4/12/05 9:42:07 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.0860 WATS Bldg 88 Moffett Airfield

ARF: 47052

Sample ID: 86-WOPT-319

APPL ID: AX16960

Sample Collection Date: 4/7/05

QCG: S86TTS-050407AC-85459

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 20.8 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	1.0	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.6	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.61	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,1-Dichloroethane	Not detected	6	1.4	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,1-Dichloroethene	5.9 J	6	1.0	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.91	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.78	ug/Kg	4/8/05	4/8/05
EPA 8260B	2-Butanone	Not detected	63	0.90	ug/Kg	4/8/05	4/8/05
EPA 8260B	2-Hexanone	Not detected	63	0.20	ug/Kg	4/8/05	4/8/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	63	1.2	ug/Kg	4/8/05	4/8/05
EPA 8260B	Acetone	6.4 B J	130	3.5	ug/Kg	4/8/05	4/8/05
EPA 8260B	Benzene	Not detected	6	0.80	ug/Kg	4/8/05	4/8/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.87	ug/Kg	4/8/05	4/8/05
EPA 8260B	Bromoform	Not detected	6	1.0	ug/Kg	4/8/05	4/8/05
EPA 8260B	Bromomethane	Not detected	13	2.0	ug/Kg	4/8/05	4/8/05
EPA 8260B	Carbon disulfide	Not detected	6	1.4	ug/Kg	4/8/05	4/8/05
EPA 8260B	Carbon tetrachloride	Not detected	6	1.0	ug/Kg	4/8/05	4/8/05
EPA 8260B	Chlorobenzene	Not detected	6	0.62	ug/Kg	4/8/05	4/8/05
EPA 8260B	Chloroethane	Not detected	6	2.0	ug/Kg	4/8/05	4/8/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	4/8/05	4/8/05
EPA 8260B	Chloromethane	Not detected	6	2.3	ug/Kg	4/8/05	4/8/05
EPA 8260B	cis-1,2-Dichloroethene	16	6	1.4	ug/Kg	4/8/05	4/8/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.59	ug/Kg	4/8/05	4/8/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.1	ug/Kg	4/8/05	4/8/05
EPA 8260B	Ethylbenzene	Not detected	6	0.81	ug/Kg	4/8/05	4/8/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/8/05	4/8/05
EPA 8260B	Methylene chloride	Not detected	63	5.8	ug/Kg	4/8/05	4/8/05
EPA 8260B	Styrene	Not detected	6	0.87	ug/Kg	4/8/05	4/8/05
EPA 8260B	Tetrachloroethene	23	6	0.68	ug/Kg	4/8/05	4/8/05
EPA 8260B	Toluene	Not detected	6	0.82	ug/Kg	4/8/05	4/8/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.7	ug/Kg	4/8/05	4/8/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

3 = The analyte was found in a method blank, as well as in the sample.

Run #: 0407C26  
Instrument: Chico  
Sequence: C050407B  
Dilution Factor: 1  
Initials: LF

Printed: 4/8/05 10 09:37 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-319

Sample Collection Date: 4/7/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47052

APPL ID: AX16960

QCG: S86TTS-050407AC-85459

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.54	ug/Kg	4/8/05	4/8/05
EPA 8260B	Trichloroethene	1200 E	6	0.90	ug/Kg	4/8/05	4/8/05
EPA 8260B	Vinyl Acetate	Not detected	63	1.3	ug/Kg	4/8/05	4/8/05
EPA 8260B	Vinyl chloride	Not detected	6	2.1	ug/Kg	4/8/05	4/8/05
EPA 8260B	Xylenes	Not detected	19	0.86	ug/Kg	4/8/05	4/8/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	110	52-149		%	4/8/05	4/8/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	97.1	65-135		%	4/8/05	4/8/05
EPA 8260B	Surrogate recovery: Toluene-d8	92.3	65-135		%	4/8/05	4/8/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

3 = The analyte was found in a method blank, as well as in the sample.

Run #: 0407C26  
Instrument: Chico  
Sequence: C050407B  
Dilution Factor: 1  
Initials: LF

Printed 4/8/05 10:09:37 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-319

Sample Collection Date: 4/7/05

ARF: 47052

APPL ID: AX16960

QCG: \$86TTD-050408BN-85562

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 20.8 Percent Moisture.)							
EPA 8260B-	Trichloroethene	1300	32	10	ug/kg	4/9/05	4/9/05
EPA 8260B-	Surrogate recovery: 1,2-Dichloroethane	88.6	52-149		%	4/9/05	4/9/05
EPA 8260B-	Surrogate recovery: 4-Bromofluorobenz	102	65-135		%	4/9/05	4/9/05
EPA 8260B-	Surrogate recovery: Toluene-d8	101	65-135		%	4/9/05	4/9/05

**AMENDED PAGE**

Run #: 0408N34  
Instrument: Neo  
Sequence: N050407  
Dilution Factor: 50  
Initials: LF

Printed: 5/27/05 8:52:12 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990 0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-319

Sample Collection Date: 4/7/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47052

APPL ID: AX16960

QCG: \$86TTD-050408BN-85562

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 20.8 Percent Moisture.)							
EPA 8260B-	Trichloroethene	1500	32	10	ug/Kg	4/9/05	4/9/05
EPA 8260B-	Surrogate recovery: 1,2-Dichloroethane	78.6	52-149		%	4/9/05	4/9/05
EPA 8260B-	Surrogate recovery: 4-Bromofluorobenz	90.3	65-135		%	4/9/05	4/9/05
EPA 8260B-	Surrogate recovery: Toluene-d8	89.9	65-135		%	4/9/05	4/9/05

Run #: 0408N34  
Instrument: Neo  
Sequence: N050407  
Dilution Factor: 50  
Initials: LF

Printed: 4/12/05 9:42:07 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.0860 WATS Bldg 88 Moffett Airfield

ARF: 47052

Sample ID: 86-WOPT-322

APPL ID: AX16961

Sample Collection Date: 4/7/05

QCG: \$86TTS-05C407AC-85459

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 22.9 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	7	1.0	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	7	1.6	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	7	0.62	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,1-Dichloroethane	3.0 J	7	1.5	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,1-Dichloroethene	1.0 J	7	1.0	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,2-Dichloroethane	Not detected	7	0.93	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,2-Dichloropropane	Not detected	7	0.80	ug/Kg	4/8/05	4/8/05
EPA 8260B	2-Butanone	Not detected	65	0.92	ug/Kg	4/8/05	4/8/05
EPA 8260B	2-Hexanone	Not detected	65	0.21	ug/Kg	4/8/05	4/8/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	65	1.2	ug/Kg	4/8/05	4/8/05
EPA 8260B	Acetone	6.5 B J	130	3.6	ug/Kg	4/8/05	4/8/05
EPA 8260B	Benzene	Not detected	7	0.82	ug/Kg	4/8/05	4/8/05
EPA 8260B	Bromodichloromethane	Not detected	7	0.89	ug/Kg	4/8/05	4/8/05
EPA 8260B	Bromoform	Not detected	7	1.0	ug/Kg	4/8/05	4/8/05
EPA 8260B	Bromomethane	Not detected	13	2.1	ug/Kg	4/8/05	4/8/05
EPA 8260B	Carbon disulfide	Not detected	7	1.4	ug/Kg	4/8/05	4/8/05
EPA 8260B	Carbon tetrachloride	Not detected	7	1.0	ug/Kg	4/8/05	4/8/05
EPA 8260B	Chlorobenzene	Not detected	7	0.64	ug/Kg	4/8/05	4/8/05
EPA 8260B	Chloroethane	Not detected	7	2.0	ug/Kg	4/8/05	4/8/05
EPA 8260B	Chloroform	Not detected	7	1.8	ug/Kg	4/8/05	4/8/05
EPA 8260B	Chloromethane	Not detected	7	2.4	ug/Kg	4/8/05	4/8/05
EPA 8260B	cis-1,2-Dichloroethene	37	7	1.4	ug/Kg	4/8/05	4/8/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	7	0.61	ug/Kg	4/8/05	4/8/05
EPA 8260B	Dibromochloromethane	Not detected	7	1.1	ug/Kg	4/8/05	4/8/05
EPA 8260B	Ethylbenzene	Not detected	7	0.83	ug/Kg	4/8/05	4/8/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	7	1.1	ug/Kg	4/8/05	4/8/05
EPA 8260B	Methylene chloride	Not detected	65	5.9	ug/Kg	4/8/05	4/8/05
EPA 8260B	Styrene	Not detected	7	0.89	ug/Kg	4/8/05	4/8/05
EPA 8260B	Tetrachloroethene	130	7	0.70	ug/Kg	4/8/05	4/8/05
EPA 8260B	Toluene	Not detected	7	0.84	ug/Kg	4/8/05	4/8/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	7	1.8	ug/Kg	4/8/05	4/8/05

J = Estimated value, below quantitation limit.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0407C27  
Instrument: Chico  
Sequence: C050407B  
Dilution Factor: 1  
Initials: LF

Printed 4/8/05 10:09:37 AM  
APPL-F1-SC-MCROS/MCPQL-REG MDLS

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-322

Sample Collection Date: 4/7/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47052

APPL ID: AX16961

QCG: S86TTS-050407AC-85459

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	7	0.56	ug/Kg	4/8/05	4/8/05
EPA 8260B	Trichloroethene	150	7	0.92	ug/Kg	4/8/05	4/8/05
EPA 8260B	Vinyl Acetate	Not detected	65	1.3	ug/Kg	4/8/05	4/8/05
EPA 8260B	Vinyl chloride	Not detected	7	2.2	ug/Kg	4/8/05	4/8/05
EPA 8260B	Xylenes	Not detected	19	0.88	ug/Kg	4/8/05	4/8/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	108	52-149		%	4/8/05	4/8/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	100	65-135		%	4/8/05	4/8/05
EPA 8260B	Surrogate recovery: Toluene-d8	97.4	65-135		%	4/8/05	4/8/05

J = Estimated value, below quantitation limit.

3 = The analyte was found in a method blank, as well as in the sample.

Run #: 0407C27  
Instrument: Chico  
Sequence: C050407B  
Dilution Factor: 1  
Initials: LF

Printed: 4/8/05 10:09:37 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.0860 WATS Bldg 88 Moffett Airfield

ARF: 47052

Sample ID: 86-WOPT-323

APPL ID: AX16962

Sample Collection Date: 4/7/05

QCG: \$86TTS-050407AC-85459

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 20.9 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	1.0	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.6	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.61	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,1-Dichloroethane	4.8 J	6	1.4	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,1-Dichloroethene	4.0 J	6	1.0	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.91	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.78	ug/Kg	4/8/05	4/8/05
EPA 8260B	2-Butanone	Not detected	63	0.90	ug/Kg	4/8/05	4/8/05
EPA 8260B	2-Hexanone	Not detected	63	0.20	ug/Kg	4/8/05	4/8/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	63	1.2	ug/Kg	4/8/05	4/8/05
EPA 8260B	Acetone	7.0 B J	130	3.5	ug/Kg	4/8/05	4/8/05
EPA 8260B	Benzene	Not detected	6	0.80	ug/Kg	4/8/05	4/8/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.87	ug/Kg	4/8/05	4/8/05
EPA 8260B	Bromoform	Not detected	6	1.0	ug/Kg	4/8/05	4/8/05
EPA 8260B	Bromomethane	Not detected	13	2.0	ug/Kg	4/8/05	4/8/05
EPA 8260B	Carbon disulfide	Not detected	6	1.4	ug/Kg	4/8/05	4/8/05
EPA 8260B	Carbon tetrachloride	Not detected	6	1.0	ug/Kg	4/8/05	4/8/05
EPA 8260B	Chlorobenzene	Not detected	6	0.62	ug/Kg	4/8/05	4/8/05
EPA 8260B	Chloroethane	Not detected	6	2.0	ug/Kg	4/8/05	4/8/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	4/8/05	4/8/05
EPA 8260B	Chloromethane	Not detected	6	2.3	ug/Kg	4/8/05	4/8/05
EPA 8260B	cis-1,2-Dichloroethene	85	6	1.4	ug/Kg	4/8/05	4/8/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.59	ug/Kg	4/8/05	4/8/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.1	ug/Kg	4/8/05	4/8/05
EPA 8260B	Ethylbenzene	Not detected	6	0.81	ug/Kg	4/8/05	4/8/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/8/05	4/8/05
EPA 8260B	Methylene chloride	Not detected	63	5.8	ug/Kg	4/8/05	4/8/05
EPA 8260B	Styrene	Not detected	6	0.87	ug/Kg	4/8/05	4/8/05
EPA 8260B	Tetrachloroethene	710 E	6	0.68	ug/Kg	4/8/05	4/8/05
EPA 8260B	Toluene	Not detected	6	0.82	ug/Kg	4/8/05	4/8/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.7	ug/Kg	4/8/05	4/8/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0407C28  
Instrument: Chico  
Sequence: C050407B  
Dilution Factor: 1  
Initials: LF

Printed 4/8/05 10:09:37 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.0850 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-323

Sample Collection Date: 4/7/05

ARF: 47052

APPL ID: AX16962

QCG: \$36TTS-050407AC-85459

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.54	ug/Kg	4/8/05	4/8/05
EPA 8260B	Trichloroethene	390 E	6	0.90	ug/Kg	4/8/05	4/8/05
EPA 8260B	Vinyl Acetate	Not detected	63	1.3	ug/Kg	4/8/05	4/8/05
EPA 8260B	Vinyl chloride	Not detected	6	2.1	ug/Kg	4/8/05	4/8/05
EPA 8260B	Xylenes	Not detected	19	0.86	ug/Kg	4/8/05	4/8/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	114	52-149		%	4/8/05	4/8/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	98.7	65-135		%	4/8/05	4/8/05
EPA 8260B	Surrogate recovery: Toluene-d8	107	65-135		%	4/8/05	4/8/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0407C28  
Instrument: Chico  
Sequence: C050407B  
Dilution Factor: 1  
Initials: LF

Printed: 4/8/05 10:09:37 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-323

Sample Collection Date: 4/7/05

ARF: 47052

APPL ID: AX16962

QCG: \$86TTD-050408BN-85562

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 20.9 Percent Moisture.)							
EPA 8260B-	Tetrachloroethene	1200	32	9.5	ug/Kg	4/9/05	4/9/05
EPA 8260B-	Trichloroethene	410	32	10	ug/Kg	4/9/05	4/9/05
EPA 8260B-	Surrogate recovery: 1,2-Dichloroethane	97.7	52-149		%	4/9/05	4/9/05
EPA 8260B-	Surrogate recovery: 4-Bromofluorobenz	111	65-135		%	4/9/05	4/9/05
EPA 8260B-	Surrogate recovery: Toluene-d8	108	65-135		%	4/9/05	4/9/05

AMENDED PAGE

Run #: 0408N35  
Instrument: Neo  
Sequence: N050407  
Dilution Factor: 50  
Initials: LF

Printed: 5/27/05 8:57:14 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-323

Sample Collection Date: 4/7/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47052

APPL ID: AX16962

QCG: \$86TTD-050408BN-85562

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 20.9 Percent Moisture.)							
EPA 8260B-	Tetrachloroethene	1400	32	9.5	ug/Kg	4/9/05	4/9/05
EPA 8260B-	Trichloroethene	470	32	10	ug/Kg	4/9/05	4/9/05
EPA 8260B-	Surrogate recovery: 1,2-Dichloroethane	83.6	52-149		%	4/9/05	4/9/05
EPA 8260B-	Surrogate recovery: 4-Bromofluorobenz	95.3	65-135		%	4/9/05	4/9/05
EPA 8260B-	Surrogate recovery: Toluene-d8	92.8	65-135		%	4/9/05	4/9/05

Run #: 0408N35  
Instrument: Neo  
Sequence: N050407  
Dilution Factor: 50  
Initials: LF

Printed: 4/12/05 9:42 07 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Blenkowski

Project: 1990.0860 WATS Bldg 88 Moffett Airfield

ARF: 47052

Sample ID: 86-WOPT-324

APPL ID: AX16963

Sample Collection Date: 4/7/05

QCG: \$86TTS-050407AC-85459

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 21.8 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	1.0	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.6	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.61	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,1-Dichloroethane	4.4 J	6	1.4	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,1-Dichloroethane	4.0 J	6	1.0	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.92	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.79	ug/Kg	4/8/05	4/8/05
EPA 8260B	2-Butanone	Not detected	64	0.91	ug/Kg	4/8/05	4/8/05
EPA 8260B	2-Hexanone	Not detected	64	0.20	ug/Kg	4/8/05	4/8/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	64	1.2	ug/Kg	4/8/05	4/8/05
EPA 8260B	Acetone	7.1 B J	130	3.6	ug/Kg	4/8/05	4/8/05
EPA 8260B	Benzene	Not detected	6	0.81	ug/Kg	4/8/05	4/8/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.88	ug/Kg	4/8/05	4/8/05
EPA 8260B	Bromoform	Not detected	6	1.0	ug/Kg	4/8/05	4/8/05
EPA 8260B	Bromomethane	Not detected	13	2.0	ug/Kg	4/8/05	4/8/05
EPA 8260B	Carbon disulfide	Not detected	6	1.4	ug/Kg	4/8/05	4/8/05
EPA 8260B	Carbon tetrachloride	Not detected	6	1.0	ug/Kg	4/8/05	4/8/05
EPA 8260B	Chlorobenzene	Not detected	6	0.63	ug/Kg	4/8/05	4/8/05
EPA 8260B	Chloroethane	Not detected	6	2.0	ug/Kg	4/8/05	4/8/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	4/8/05	4/8/05
EPA 8260B	Chloromethane	Not detected	6	2.3	ug/Kg	4/8/05	4/8/05
EPA 8260B	cis-1,2-Dichloroethene	79	6	1.4	ug/Kg	4/8/05	4/8/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.60	ug/Kg	4/8/05	4/8/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.1	ug/Kg	4/8/05	4/8/05
EPA 8260B	Ethylbenzene	Not detected	6	0.82	ug/Kg	4/8/05	4/8/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/8/05	4/8/05
EPA 8260B	Methylene chloride	Not detected	64	5.9	ug/Kg	4/8/05	4/8/05
EPA 8260B	Styrene	Not detected	6	0.88	ug/Kg	4/8/05	4/8/05
EPA 8260B	Tetrachloroethene	560 E	6	0.69	ug/Kg	4/8/05	4/8/05
EPA 8260B	Toluene	Not detected	6	0.83	ug/Kg	4/8/05	4/8/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.7	ug/Kg	4/8/05	4/8/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

3 = The analyte was found in a method blank, as well as in the sample.

Run #: 0407C29  
Instrument: Chico  
Sequence: C050407B  
Dilution Factor: 1  
Initials: LF

Printed 4/8/05 10:09:37 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-324

Sample Collection Date: 4/7/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47052

APPL ID: AX16963

QCG: \$86TTS-050407AC-85459

Method	Analyte	Result	POL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.55	ug/Kg	4/8/05	4/8/05
EPA 8260B	Trichloroethene	260 E	6	0.91	ug/Kg	4/8/05	4/8/05
EPA 8260B	Vinyl Acetate	Not detected	64	1.3	ug/Kg	4/8/05	4/8/05
EPA 8260B	Vinyl chloride	Not detected	6	2.1	ug/Kg	4/8/05	4/8/05
EPA 8260B	Xylenes	Not detected	19	0.87	ug/Kg	4/8/05	4/8/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	114	52-149		%	4/8/05	4/8/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	109	65-135		%	4/8/05	4/8/05
EPA 8260B	Surrogate recovery: Toluene-d8	97.2	65-135		%	4/8/05	4/8/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.  
B = The analyte was found in a method blank, as well as in the sample.

Run #: 0407C29  
Instrument: Chlco  
Sequence: C050407B  
Dilution Factor: 1  
Initials: LF

Printed: 4/8/05 10:09:37 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski  
Project: 1990.0860 WATS Bldg 88 Moffett Airfield

ARF: 47052

Sample ID: 86-WOPT-324

APPL ID: AX16963

Sample Collection Date: 4/7/05

QCG: \$86TTD-050408BN-85582

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 21.8 Percent Moisture.)							
EPA 8260B-	Tetrachloroethene	2700	32	9.6	ug/Kg	4/9/05	4/9/05
EPA 8260B-	Trichloroethene	540	32	10	ug/Kg	4/9/05	4/9/05
EPA 8260B-	Surrogate recovery: 1,2-Dichloroethane	94.6	52-149		%	4/9/05	4/9/05
EPA 8260B-	Surrogate recovery: 4-Bromofluorobenz	110	65-135		%	4/9/05	4/9/05
EPA 8260B-	Surrogate recovery: Toluene-d8	107	65-135		%	4/9/05	4/9/05

**AMENDED PAGE**

Run #: 0408N36  
Instrument: Neo  
Sequence: N050407  
Dilution Factor: 60  
Initials: LF

Printed: 5/27/05 8:52:12 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-324

Sample Collection Date: 4/7/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47052

APPL ID: AX16963

QCG: \$86TTD-050408BN-85562

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 21.8 Percent Moisture.)							
EPA 8260B-	Tetrachloroethene	3200	32	9.6	ug/Kg	4/9/05	4/9/05
EPA 8260B-	Trichloroethene	640	32	10	ug/Kg	4/9/05	4/9/05
EPA 8260B-	Surrogate recovery: 1,2-Dichloroethane	79.8	52-149		%	4/9/05	4/9/05
EPA 8260B-	Surrogate recovery: 4-Bromofluorobenz	93.1	65-135		%	4/9/05	4/9/05
EPA 8260B-	Surrogate recovery: Toluene-d8	90.5	65-135		%	4/9/05	4/9/05

Run #: 0408N36  
Instrument: Neo  
Sequence: N050407  
Dilution Factor: 50  
Initials: LF

Printed 4/12/05 9:42:07 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-325

Sample Collection Date: 4/7/05

ARF: 47052

APPL ID: AX16964

QCQ: S86TTS-050407BC-85504

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 20.8 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	1.0	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.6	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.61	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,1-Dichloroethane	9.2	6	1.4	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,1-Dichloroethene	36	6	1.0	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.91	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.78	ug/Kg	4/8/05	4/8/05
EPA 8260B	2-Butanone	Not detected	63	0.90	ug/Kg	4/8/05	4/8/05
EPA 8260B	2-Hexanone	Not detected	63	0.20	ug/Kg	4/8/05	4/8/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	63	1.2	ug/Kg	4/8/05	4/8/05
EPA 8260B	Acetone	14 B J	130	3.5	ug/Kg	4/8/05	4/8/05
EPA 8260B	Benzene	Not detected	6	0.80	ug/Kg	4/8/05	4/8/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.87	ug/Kg	4/8/05	4/8/05
EPA 8260B	Bromoform	Not detected	6	1.0	ug/Kg	4/8/05	4/8/05
EPA 8260B	Bromomethane	Not detected	13	2.0	ug/Kg	4/8/05	4/8/05
EPA 8260B	Carbon disulfide	Not detected	6	1.4	ug/Kg	4/8/05	4/8/05
EPA 8260B	Carbon tetrachloride	Not detected	6	1.0	ug/Kg	4/8/05	4/8/05
EPA 8260B	Chlorobenzene	Not detected	6	0.62	ug/Kg	4/8/05	4/8/05
EPA 8260B	Chloroethane	Not detected	6	2.0	ug/Kg	4/8/05	4/8/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	4/8/05	4/8/05
EPA 8260B	Chloromethane	Not detected	6	2.3	ug/Kg	4/8/05	4/8/05
EPA 8260B	cis-1,2-Dichloroethene	2300 E	6	1.4	ug/Kg	4/8/05	4/8/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.59	ug/Kg	4/8/05	4/8/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.1	ug/Kg	4/8/05	4/8/05
EPA 8260B	Ethylbenzene	Not detected	6	0.81	ug/Kg	4/8/05	4/8/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/8/05	4/8/05
EPA 8260B	Methylene chloride	Not detected	63	5.8	ug/Kg	4/8/05	4/8/05
EPA 8260B	Styrene	Not detected	6	0.87	ug/Kg	4/8/05	4/8/05
EPA 8260B	Tetrachloroethene	1800 E	6	0.68	ug/Kg	4/8/05	4/8/05
EPA 8260B	Toluene	Not detected	6	0.82	ug/Kg	4/8/05	4/8/05
EPA 8260B	trans-1,2-Dichloroethene	8.1	6	1.7	ug/Kg	4/8/05	4/8/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0407C38  
Instrument: Chico  
Sequence: C050407B  
Dilution Factor: 1  
Initials: LF

Printed: 4/11/05 3:52:25 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.,  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990 0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-325

Sample Collection Date: 4/7/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47052

APPL ID: AX16964

QCG: \$86TTS-050407BC-85504

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.54	ug/Kg	4/8/05	4/8/05
EPA 8260B	Trichloroethene	2200 E	6	0.90	ug/Kg	4/8/05	4/8/05
EPA 8260B	Vinyl Acetate	Not detected	63	1.3	ug/Kg	4/8/05	4/8/05
EPA 8260B	Vinyl chloride	Not detected	6	2.1	ug/Kg	4/8/05	4/8/05
EPA 8260B	Xylenes	Not detected	19	0.86	ug/Kg	4/8/05	4/8/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	105	52-149		%	4/8/05	4/8/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	90.6	65-135		%	4/8/05	4/8/05
EPA 8260B	Surrogate recovery: Toluene-d8	106	65-135		%	4/8/05	4/8/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0407C38  
Instrument: Chico  
Sequence: C050407B  
Dilution Factor: 1  
Initials: LF

Printed: 4/11/05 3:52:25 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-325

Sample Collection Date: 04/07/05

ARF: 47052

APPL ID: AX16964

QCG: \$86TTD-050410AN-85563

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 20.8 Percent Moisture.)							
EPA 8260B-	1,1,2,2-Tetrachloroethane	Not detected	32	17	ug/Kg	04/11/05	04/11/05
EPA 8260B-	4-Methyl-2-pentanone	Not detected	320	120	ug/Kg	04/11/05	04/11/05
EPA 8260B-	cis-1,2-Dichloroethene	2300	32	10	ug/Kg	04/11/05	04/11/05
EPA 8260B-	Tetrachloroethene	5200	32	9.5	ug/Kg	04/11/05	04/11/05
EPA 8260B-	Trichloroethene	4400	32	10	ug/Kg	04/11/05	04/11/05
EPA 8260B-	Surrogate recovery: 1,2-Dichloroethane	86.0	52-149		%	04/11/05	04/11/05
EPA 8260B-	Surrogate recovery: 4-Bromofluorobenz	103	65-135		%	04/11/05	04/11/05
EPA 8260B-	Surrogate recovery: Toluene-d8	105	65-135		%	04/11/05	04/11/05

Run #: 0410N08  
Instrument: Neo  
Sequence: N050407  
Dilution Factor: 50  
Initials: LF

Printed: 04/14/05 2:08:28 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-326

Sample Collection Date: 4/7/05

ARF: 47052

APPL ID: AX16965

QCG: \$86TTS-050407BC-85504

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 19.8 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	1.0	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.6	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.60	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,1-Dichloroethane	Not detected	6	1.4	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,1-Dichloroethene	7.9	6	0.99	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.90	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.77	ug/Kg	4/8/05	4/8/05
EPA 8260B	2-Butanone	Not detected	62	0.89	ug/Kg	4/8/05	4/8/05
EPA 8260B	2-Hexanone	Not detected	62	0.20	ug/Kg	4/8/05	4/8/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	62	1.2	ug/Kg	4/8/05	4/8/05
EPA 8260B	Acetone	9.5 B J	120	3.5	ug/Kg	4/8/05	4/8/05
EPA 8260B	Benzene	Not detected	6	0.79	ug/Kg	4/8/05	4/8/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.86	ug/Kg	4/8/05	4/8/05
EPA 8260B	Bromoform	Not detected	6	1.0	ug/Kg	4/8/05	4/8/05
EPA 8260B	Bromomethane	Not detected	12	2.0	ug/Kg	4/8/05	4/8/05
EPA 8260B	Carbon disulfide	Not detected	6	1.4	ug/Kg	4/8/05	4/8/05
EPA 8260B	Carbon tetrachloride	Not detected	6	1.0	ug/Kg	4/8/05	4/8/05
EPA 8260B	Chlorobenzene	Not detected	6	0.61	ug/Kg	4/8/05	4/8/05
EPA 8260B	Chloroethane	Not detected	6	1.9	ug/Kg	4/8/05	4/8/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	4/8/05	4/8/05
EPA 8260B	Chloromethane	Not detected	6	2.3	ug/Kg	4/8/05	4/8/05
EPA 8260B	cis-1,2-Dichloroethene	1800 E	6	1.3	ug/Kg	4/8/05	4/8/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.59	ug/Kg	4/8/05	4/8/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.1	ug/Kg	4/8/05	4/8/05
EPA 8260B	Ethylbenzene	Not detected	6	0.80	ug/Kg	4/8/05	4/8/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/8/05	4/8/05
EPA 8260B	Methylene chloride	Not detected	62	5.7	ug/Kg	4/8/05	4/8/05
EPA 8260B	Styrene	Not detected	6	0.86	ug/Kg	4/8/05	4/8/05
EPA 8260B	Tetrachloroethene	700 E	6	0.67	ug/Kg	4/8/05	4/8/05
EPA 8260B	Toluene	Not detected	6	0.81	ug/Kg	4/8/05	4/8/05
EPA 8260B	trans-1,2-Dichloroethene	4.9 J	6	1.7	ug/Kg	4/8/05	4/8/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0407C39  
Instrument: Chico  
Sequence: C050407B  
Dilution Factor: 1  
Initials: LF

Printed: 4/11/05 3:52:25 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-326

Sample Collection Date: 4/7/05

ARF: 47052

APPL ID: AX16965

QCG: \$86TTS-050407BC-85504

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.54	ug/Kg	4/8/05	4/8/05
EPA 8260B	Trichloroethene	460 E	6	0.89	ug/Kg	4/8/05	4/8/05
EPA 8260B	Vinyl Acetate	Not detected	62	1.2	ug/Kg	4/8/05	4/8/05
EPA 8260B	Vinyl chloride	Not detected	6	2.1	ug/Kg	4/8/05	4/8/05
EPA 8260B	Xylenes	Not detected	19	0.85	ug/Kg	4/8/05	4/8/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	100	52-149		%	4/8/05	4/8/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	97.1	65-135		%	4/8/05	4/8/05
EPA 8260B	Surrogate recovery: Toluene-d8	98.7	65-135		%	4/8/05	4/8/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0407C39  
Instrument: Chico  
Sequence: C050407B  
Dilution Factor: 1  
Initials: LF

Printed: 4/11/05 3:52:25 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-326

Sample Collection Date: 4/7/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47052

APPL ID: AX16965

QCG: \$86TTD-050410AN-85563

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 19.8 Percent Moisture.)							
EPA 8260B-	cis-1,2-Dichloroethene	2400	31	10.0	ug/Kg	4/11/05	4/11/05
EPA 8260B-	Tetrachloroethene	2400	31	9.3	ug/Kg	4/11/05	4/11/05
EPA 8260B-	Trichloroethene	1100	31	10.0	ug/Kg	4/11/05	4/11/05
EPA 8260B-	Surrogate recovery: 1,2-Dichloroethane	95.6	52-149		%	4/11/05	4/11/05
EPA 8260B-	Surrogate recovery: 4-Bromofluorobenz	111	65-135		%	4/11/05	4/11/05
EPA 8260B-	Surrogate recovery: Toluene-d8	108	65-135		%	4/11/05	4/11/05

Run #: 0410N09  
Instrument: Neo  
Sequence: N050407  
Dilution Factor: 50  
Initials: LF

Printed: 4/12/05 9:42:07 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Blenkowski

Project: 1990.0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-327

Sample Collection Date: 4/7/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47052

APPL ID: AX16966

QCG: \$867TS-050407BC-85504

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 12.3 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	0.92	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.4	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.55	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,1-Dichloroethane	1.6 J	6	1.3	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,1-Dichloroethene	3.5 J	6	0.90	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.82	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.71	ug/Kg	4/8/05	4/8/05
EPA 8260B	2-Butanone	Not detected	57	0.81	ug/Kg	4/8/05	4/8/05
EPA 8260B	2-Hexanone	Not detected	57	0.18	ug/Kg	4/8/05	4/8/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	57	1.1	ug/Kg	4/8/05	4/8/05
EPA 8260B	Acetone	8.1 J	110	3.2	ug/Kg	4/8/05	4/8/05
EPA 8260B	Benzene	Not detected	6	0.72	ug/Kg	4/8/05	4/8/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.79	ug/Kg	4/8/05	4/8/05
EPA 8260B	Bromoform	Not detected	6	0.91	ug/Kg	4/8/05	4/8/05
EPA 8260B	Bromomethane	Not detected	11	1.8	ug/Kg	4/8/05	4/8/05
EPA 8260B	Carbon disulfide	Not detected	6	1.2	ug/Kg	4/8/05	4/8/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.91	ug/Kg	4/8/05	4/8/05
EPA 8260B	Chlorobenzene	Not detected	6	0.56	ug/Kg	4/8/05	4/8/05
EPA 8260B	Chloroethane	Not detected	6	1.8	ug/Kg	4/8/05	4/8/05
EPA 8260B	Chloroform	Not detected	6	1.6	ug/Kg	4/8/05	4/8/05
EPA 8260B	Chloromethane	Not detected	6	2.1	ug/Kg	4/8/05	4/8/05
EPA 8260B	cis-1,2-Dichloroethane	270 E	6	1.2	ug/Kg	4/8/05	4/8/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.54	ug/Kg	4/8/05	4/8/05
EPA 8260B	Dibromochloromethane	Not detected	6	0.97	ug/Kg	4/8/05	4/8/05
EPA 8260B	Ethylbenzene	Not detected	6	0.73	ug/Kg	4/8/05	4/8/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.0	ug/Kg	4/8/05	4/8/05
EPA 8260B	Methylene chloride	Not detected	57	5.2	ug/Kg	4/8/05	4/8/05
EPA 8260B	Styrene	Not detected	6	0.79	ug/Kg	4/8/05	4/8/05
EPA 8260B	Tetrachloroethene	0.95 J	6	0.62	ug/Kg	4/8/05	4/8/05
EPA 8260B	Toluene	Not detected	6	0.74	ug/Kg	4/8/05	4/8/05
EPA 8260B	trans-1,2-Dichloroethene	9.9	6	1.5	ug/Kg	4/8/05	4/8/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0407C40  
Instrument: Chico  
Sequence: C050407B  
Dilution Factor: 1  
Initials: LF

Printed: 4/11/05 3:52:25 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-327

Sample Collection Date: 4/7/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47052

APPL ID: AX16966

QCG: \$86TTS-050407BC-85504

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.49	ug/Kg	4/8/05	4/8/05
EPA 8260B	Trichloroethene	7.5	6	0.81	ug/Kg	4/8/05	4/8/05
EPA 8260B	Vinyl Acetate	Not detected	57	1.1	ug/Kg	4/8/05	4/8/05
EPA 8260B	Vinyl chloride	Not detected	6	1.9	ug/Kg	4/8/05	4/8/05
EPA 8260B	Xylenes	Not detected	17	0.78	ug/Kg	4/8/05	4/8/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	96.4	52-149		%	4/8/05	4/8/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	96.3	65-135		%	4/8/05	4/8/05
EPA 8260B	Surrogate recovery: Toluene-d8	95.5	65-135		%	4/8/05	4/8/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0407C40  
Instrument: Chico  
Sequence: C050407B  
Dilution Factor: 1  
Initials: LF

Printed: 4/11/05 3:52:25 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-327

Sample Collection Date: 4/7/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47052

APPL ID: AX16966

QCG: \$86TTD-050410AN-85563

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 12.3 Percent Moisture.)							
EPA 8260B-	cis-1,2-Dichloroethene	1400	29				
EPA 8260B-	Surrogate recovery: 1,2-Dichloroethane	87.7	52-149				
EPA 8260B-	Surrogate recovery: 4-Bromofluorobenz	109	65-135				
EPA 8260B-	Surrogate recovery: Toluene-d8	112	65-135				
				9.1	ug/Kg	4/11/05	4/11/05
					%	4/11/05	4/11/05
					%	4/11/05	4/11/05
					%	4/11/05	4/11/05

Run #: 0410N10  
Instrument: Neo  
Sequence: N050407  
Dilution Factor: 50  
Initials: LF

Printed: 4/12/05 9:42:07 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-328

Sample Collection Date: 4/7/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47052

APPL ID: AX16967

CCG: \$86TTG-050407BC-85504

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 13.3 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	0.93	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.4	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.55	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,1-Dichloroethane	Not detected	6	1.3	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,1-Dichloroethene	2.8 J	6	0.91	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.83	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.72	ug/Kg	4/8/05	4/8/05
EPA 8260B	2-Butanone	Not detected	58	0.82	ug/Kg	4/8/05	4/8/05
EPA 8260B	2-Hexanone	Not detected	58	0.18	ug/Kg	4/8/05	4/8/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	58	1.1	ug/Kg	4/8/05	4/8/05
EPA 8260B	Acetone	5.4 B J	120	3.2	ug/Kg	4/8/05	4/8/05
EPA 8260B	Benzene	Not detected	6	0.73	ug/Kg	4/8/05	4/8/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.80	ug/Kg	4/8/05	4/8/05
EPA 8260B	Bromoform	Not detected	6	0.92	ug/Kg	4/8/05	4/8/05
EPA 8260B	Bromomethane	Not detected	12	1.8	ug/Kg	4/8/05	4/8/05
EPA 8260B	Carbon disulfide	Not detected	6	1.2	ug/Kg	4/8/05	4/8/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.92	ug/Kg	4/8/05	4/8/05
EPA 8260B	Chlorobenzene	Not detected	6	0.57	ug/Kg	4/8/05	4/8/05
EPA 8260B	Chloroethane	Not detected	6	1.8	ug/Kg	4/8/05	4/8/05
EPA 8260B	Chloroform	Not detected	6	1.6	ug/Kg	4/8/05	4/8/05
EPA 8260B	Chloromethane	Not detected	6	2.1	ug/Kg	4/8/05	4/8/05
EPA 8260B	cis-1,2-Dichloroethene	14	6	1.2	ug/Kg	4/8/05	4/8/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.54	ug/Kg	4/8/05	4/8/05
EPA 8260B	Dibromochloromethane	Not detected	6	0.98	ug/Kg	4/8/05	4/8/05
EPA 8260B	Ethylbenzene	Not detected	6	0.74	ug/Kg	4/8/05	4/8/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.0	ug/Kg	4/8/05	4/8/05
EPA 8260B	Methylene chloride	Not detected	58	5.3	ug/Kg	4/8/05	4/8/05
EPA 8260B	Styrene	Not detected	6	0.80	ug/Kg	4/8/05	4/8/05
EPA 8260B	Tetrachloroethene	Not detected	6	0.62	ug/Kg	4/8/05	4/8/05
EPA 8260B	Toluene	Not detected	6	0.75	ug/Kg	4/8/05	4/8/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.6	ug/Kg	4/8/05	4/8/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0407C41  
Instrument: Chico  
Sequence: C050407B  
Dilution Factor: 1  
Initials: LF

Printed: 4/11/05 3:52 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Blenkowski

Project: 1990.0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-328

Sample Collection Date: 4/7/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47052

APPL ID: AX16967

QCG: \$86TTS-050407BC-85504

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.50	ug/Kg	4/8/05	4/8/05
EPA 8260B	Trichloroethene	410 E	6	0.82	ug/Kg	4/8/05	4/8/05
EPA 8260B	Vinyl Acetate	Not detected	58	1.2	ug/Kg	4/8/05	4/8/05
EPA 8260B	Vinyl chloride	Not detected	6	1.9	ug/Kg	4/8/05	4/8/05
EPA 8260B	Xylenes	Not detected	17	0.78	ug/Kg	4/8/05	4/8/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	108	52-149		%	4/8/05	4/8/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	106	65-135		%	4/8/05	4/8/05
EPA 8260B	Surrogate recovery: Toluene-d8	100	65-135		%	4/8/05	4/8/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0407C41  
Instrument: Chico  
Sequence: C050407B  
Dilution Factor: 1  
Initials: LF

Printed: 4/11/05 3:52:25 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-328

Sample Collection Date: 4/7/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47052

APPL ID: AX16967

QCG: S96TTD-050410AN-85563

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 13.3 Percent Moisture.)							
EPA 8260B-	Trichloroethene	1700	29	9.2	ug/Kg	4/11/05	4/11/05
EPA 8260B-	Surrogate recovery: 1,2-Dichloroethane	95.2	52-149		%	4/11/05	4/11/05
EPA 8260B-	Surrogate recovery: 4-Bromofluorobenz	110	65-135		%	4/11/05	4/11/05
EPA 8260B-	Surrogate recovery: Toluene-d8	109	65-135		%	4/11/05	4/11/05

Run #: 0410N11  
Instrument: Neo  
Sequence: N050407  
Dilution Factor: 50  
Initials: LF

Printed: 4/12/05 9:42:07 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-329

Sample Collection Date: 4/7/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47052

APPL ID: AX16968

QCQ: \$86TTW-050407AN-85462

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/8/05	4/8/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/8/05	4/8/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/8/05	4/8/05
EPA 8260B	1,1-Dichloroethane	Not detected	0.5	0.19	ug/L	4/8/05	4/8/05
EPA 8260B	1,1-Dichloroethene	Not detected	0.5	0.30	ug/L	4/8/05	4/8/05
EPA 8260B	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/8/05	4/8/05
EPA 8260B	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/8/05	4/8/05
EPA 8260B	2-Butanone	Not detected	5	0.6	ug/L	4/8/05	4/8/05
EPA 8260B	2-Hexanone	Not detected	5	0.92	ug/L	4/8/05	4/8/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/8/05	4/8/05
EPA 8260B	Acetone	Not detected	5	0.95	ug/L	4/8/05	4/8/05
EPA 8260B	Benzene	Not detected	0.5	0.16	ug/L	4/8/05	4/8/05
EPA 8260B	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/8/05	4/8/05
EPA 8260B	Bromoforn	Not detected	0.5	0.14	ug/L	4/8/05	4/8/05
EPA 8260B	Bromomethane	Not detected	1	0.24	ug/L	4/8/05	4/8/05
EPA 8260B	Carbon disulfide	Not detected	0.5	0.2	ug/L	4/8/05	4/8/05
EPA 8260B	Carbon tetrachloride	Not detected	0.5	0.10	ug/L	4/8/05	4/8/05
EPA 8260B	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/8/05	4/8/05
EPA 8260B	Chloroethane	Not detected	0.5	0.21	ug/L	4/8/05	4/8/05
EPA 8260B	Chloroform	Not detected	0.5	0.16	ug/L	4/8/05	4/8/05
EPA 8260B	Chloromethane	Not detected	0.5	0.31	ug/L	4/8/05	4/8/05
EPA 8260B	cis-1,2-Dichloroethene	Not detected	0.5	0.16	ug/L	4/8/05	4/8/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/8/05	4/8/05
EPA 8260B	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/8/05	4/8/05
EPA 8260B	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/8/05	4/8/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/8/05	4/8/05
EPA 8260B	Methylene chloride	Not detected	5	0.35	ug/L	4/8/05	4/8/05
EPA 8260B	Styrene	Not detected	0.5	0.25	ug/L	4/8/05	4/8/05
EPA 8260B	Tetrachloroethene	Not detected	0.5	0.15	ug/L	4/8/05	4/8/05
EPA 8260B	Toluene	Not detected	0.5	0.17	ug/L	4/8/05	4/8/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	0.5	0.19	ug/L	4/8/05	4/8/05

Run #: 0407N18  
Instrument: Neo  
Sequence: N050407  
Dilution Factor: 1  
Initials: LF

Printed: 4/8/05 10:10:19 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-329

Sample Collection Date: 4/7/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47052

APPL ID: AX16968

QCG: \$86TTW-050407AN-85462

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/8/05	4/8/05
EPA 8260B	Trichloroethene	Not detected	0.5	0.16	ug/L	4/8/05	4/8/05
EPA 8260B	Vinyl Acetate	Not detected	5	0.31	ug/L	4/8/05	4/8/05
EPA 8260B	Vinyl chloride	Not detected	0.5	0.23	ug/L	4/8/05	4/8/05
EPA 8260B	Xylenes	Not detected	1.5	0.19	ug/L	4/8/05	4/8/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	83.4	62-139		%	4/8/05	4/8/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	96.9	75-125		%	4/8/05	4/8/05
EPA 8260B	Surrogate recovery: Toluene-d8	92.7	75-125		%	4/8/05	4/8/05

Run #: 0407N18  
Instrument: Neo  
Sequence: N050407  
Dilution Factor: 1  
Initials: LF

Printed: 4/8/05 10:10:19 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



## Case Narrative

ARF: 47052

Project: 1990.0860 WATS Bldg 88 Moffett Airfield

State Certification Number: CA1312

Results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

### Sample Receipt Information:

The sample group was received April 7, 2005, at 3.5°C. The samples were assigned Analytical Request Form (ARF) number 47052. The sample numbers and requested analyses were compared to the chains of custody. The soil TOC analysis was sub-contracted to Columbia Analytical Laboratory. No exception was noted.

Sample Table

CLIENT ID	APPL ID	Matrix	Date Sampled	Date Received
86-WOPT-310	AX16951	WATER	04/07/05	04/07/05
86-WOPT-311	AX16952	SOIL	04/07/05	04/07/05
86-WOPT-312	AX16953	SOIL	04/07/05	04/07/05
86-WOPT-313	AX16954	SOIL	04/07/05	04/07/05
86-WOPT-314	AX16955	SOIL	04/07/05	04/07/05
86-WOPT-315	AX16956	SOIL	04/07/05	04/07/05
86-WOPT-316	AX16957	SOIL	04/07/05	04/07/05
86-WOPT-317	AX16958	SOIL	04/07/05	04/07/05
86-WOPT-318	AX16959	SOIL	04/07/05	04/07/05
86-WOPT-319	AX16960	SOIL	04/07/05	04/07/05
86-WOPT-322	AX16961	SOIL	04/07/05	04/07/05
86-WOPT-323	AX16962	SOIL	04/07/05	04/07/05
86-WOPT-324	AX16963	SOIL	04/07/05	04/07/05
86-WOPT-325	AX16964	SOIL	04/07/05	04/07/05
86-WOPT-326	AX16965	SOIL	04/07/05	04/07/05
86-WOPT-327	AX16966	SOIL	04/07/05	04/07/05
86-WOPT-328	AX16967	SOIL	04/07/05	04/07/05
86-WOPT-329	AX16968	WATER	04/07/05	04/07/05

# **EPA Method 9060**

## **Total Organic Carbon Analysis**

### **Sample Preparation:**

The samples were prepared according to EPA method 9060. All holding times were met.

### **Sample Analysis Information:**

The samples were analyzed according to the method using a Shimadzu TOC-5050A TOC analyzer.

### **Quality Control/Assurance**

#### **Calibrations:**

Initial and continuing calibrations were performed according to the method. All calibration criteria were met.

#### **Blanks:**

No target analytes were detected at or above the reporting limits in the method blank.

#### **Spikes:**

Laboratory Control Spikes (LCS) were used for quality assurance. All spike criteria were met.

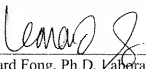
No sample was designated by the client for an MS/MSD analysis. Sample 86-WOPT-329 was chosen by the laboratory for MS/MSD analysis. For the MS/MSD, the TOC was recovered above the 110% upper control limit at 113% and 114%.

### **Summary:**

No additional problem was encountered. All data were acceptable.

## CERTIFICATION

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the hard copy has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

 4/27/05  
\_\_\_\_\_  
Leonard Fong, Ph.D. Laboratory Director / Date

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.0860 WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-329**

Sample Collection Date: 4/7/05

**APPL ID: AX16968**

ARF: 47052

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
SW846 9060	Total Organic Carbon	Not detected	0.5	0.129	mg/L	4/8/05	4/8/05

Printed: 4/15/05 5:17:26 PM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

April 22, 2005

Service Request No: K2502599

Robert Wise  
APPL, Inc.  
4203 W. Swift Avenue  
Fresno, CA 93722

**RE: 00-47052**

Dear Robert:

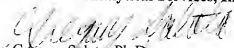
Enclosed are the results of the sample(s) submitted to our laboratory on April 9, 2005. For your reference, these analyses have been assigned our service request number K2502599.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAC standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3376.

Respectfully submitted,

**Columbia Analytical Services, Inc.**



Gregory Salata, Ph.D.  
Project Chemist

GS/jeb

Page 1 of 1

COLUMBIA ANALYTICAL SERVICES, INC.

Client: Agriculture & Priority Pollutants Labs, Inc.  
Project: 47052  
Sample Matrix: Soil

Service Request No.: K2502599  
Date Received: 04/09/05

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier III validation deliverables including summary forms and all of the associated raw data for each of the analyses. When appropriate to the method, method blank results have been reported with each analytical test.


Sample Receipt

Sixteen soil samples were received for analysis at Columbia Analytical Services on 04/09/05. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

General Chemistry Parameters

No anomalies associated with the analysis of these samples were observed.

Approved by



Date

4/12/05

00005

## COLUMBIA ANALYTICAL SERVICES, INC.

## Analytical Report

Client : Agriculture & Priority Pollutants Labs  
 Project Name : NA  
 Project Number : 00-47052  
 Sample Matrix : SOIL

Service Request : K2502599  
 Date Collected : 04/07/05  
 Date Received : 04/09/05

## Carbon, Total Organic

Analysis Method : Walkley-Black  
 Test Notes :

Units : mg Kg (ppm)  
 Basis : Dry

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
86-WOPT-311	K2502599-001	2600	1170	1	04/12/05	4730	
86-WOPT-312	K2502599-002	2600	1170	1	04/12/05	ND	
86-WOPT-313	K2502599-003	2600	1170	1	04/12/05	4780	
86-WOPT-314	K2502599-004	2600	1170	1	04/12/05	ND	
86-WOPT-315	K2502599-005	2600	1170	1	04/12/05	ND	
86-WOPT-316	K2502599-006	2600	1170	1	04/12/05	7450	
86-WOPT-317	K2502599-007	2600	1170	1	04/12/05	ND	
86-WOPT-318	K2502599-008	2600	1170	1	04/12/05	ND	
86-WOPT-319	K2502599-009	2600	1170	1	04/13/05	ND	
86-WOPT-322	K2502599-010	2600	1170	1	04/13/05	6370	
86-WOPT-323	K2502599-011	2600	1170	1	04/13/05	1870	J
86-WOPT-324	K2502599-012	2600	1170	1	04/13/05	2600	
86-WOPT-325	K2502599-013	2600	1170	1	04/13/05	2370	J
86-WOPT-326	K2502599-014	2600	1170	1	04/13/05	3550	
86-WOPT-327	K2502599-015	2600	1170	1	04/13/05	1850	J
86-WOPT-328	K2502599-016	2600	1170	1	04/13/05	1910	J
Method Blank	K2502599-MB	2600	1170	1	04/13/05	ND	
Method Blank	K2502599-MB	2600	1170	1	04/12/05	ND	

00010



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Air Field, Building 88, CTO 86  
**Collection Date:** April 7, 2005  
**LDC Report Date:** May 24, 2005  
**Matrix:** Soil/Water  
**Parameters:** Total Organic Carbon  
**Validation Level:** EPA Level III & IV  
**Laboratory:** APPL, Inc./Columbia Analytical Services, Inc.  
**Sample Delivery Group (SDG):** 47052/K2502599

**Sample Identification**

86-WOPT-311  
86-WOPT-312\*\*  
86-WOPT-313  
86-WOPT-314  
86-WOPT-315  
86-WOPT-316  
86-WOPT-317\*\*  
86-WOPT-318  
86-WOPT-319  
86-WOPT-322  
86-WOPT-323  
86-WOPT-324\*\*  
86-WOPT-325  
86-WOPT-326  
86-WOPT-327  
86-WOPT-328  
86-WOPT-329\*\*  
86-WOPT-311DUP  
86-WOPT-328DUP  
86-WOPT-329MS  
86-WOPT-329MSD

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 18 soil samples and 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per Walkley-Black Method and EPA SW 846 9060 for Total Organic Carbon (TOC).

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the method stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks results are summarized in Section III.

Field duplicates are summarized in Section IX.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Calibration**

### **a. Initial Calibration**

All criteria for the initial calibration were met.

### **b. Calibration Verification**

A continuing calibration verification (CCV) analysis was performed. The criteria for analysis were met.

## **III. Blanks**

Method blanks were reviewed for each matrix as applicable. No total organic carbon contaminants were found in the method blanks.

## **IV. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **V. Duplicates**

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Relative percent differences (RPD) were within QC limits.

## **VI. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VII. Sample Result Verification**

All sample result verifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **VIII. Overall Assessment of Data**

Data flags have been summarized at the end of this report.

## **IX. Field Duplicates**

No field duplicates were identified in this SDG.

## **X. Field Blanks**

Sample 86-WOPT-329\*\* was identified as an equipment rinsate. No total organic carbon contaminants were found in this blank.

**Moffett Air Field, Building 88, CTO 86**

**Total Organic Carbon - Data Qualification Summary - SDG 47052/K2502599**

No Sample Data Qualified in this SDG

**Moffett Air Field, Building 88, CTO 86**

**Total Organic Carbon - Laboratory Blank Data Qualification Summary - SDG 47052/K2502599**

No Sample Data Qualified in this SDG

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Moffett Air Field, Building 88, CTO 86

**Collection Date:** April 7, 2005

**LDC Report Date:** May 26, 2005

**Matrix:** Soil/Water

**Parameters:** Volatiles

**Validation Level:** EPA Level III & IV

**Laboratory:** APPL, Inc.

**Sample Delivery Group (SDG):** 47052

### Sample Identification

86-WOPT-310	86-WOPT-323
86-WOPT-311	86-WOPT-323DL
86-WOPT-311DL	86-WOPT-324**
86-WOPT-312**	86-WOPT-324DL**
86-WOPT-312DL**	86-WOPT-325
86-WOPT-313	86-WOPT-325DL
86-WOPT-313DL	86-WOPT-326
86-WOPT-314	86-WOPT-326DL
86-WOPT-314DL	86-WOPT-327
86-WOPT-315	86-WOPT-327DL
86-WOPT-315DL	86-WOPT-328
86-WOPT-316	86-WOPT-328DL
86-WOPT-316DL	86-WOPT-329**
86-WOPT-317**	86-WOPT-311MS
86-WOPT-317DL**	86-WOPT-311MSD
86-WOPT-318	86-WOPT-328MS
86-WOPT-318DL	86-WOPT-328MSD
86-WOPT-319	
86-WOPT-319DL	
86-WOPT-322	

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 35 soil samples and 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 15.0% for each individual compound and less than or equal to 30.0% for calibration check compounds (CCCs) with the following exceptions:

Date	Compound	%RSD	Associated Samples	Flag	A or P
4/7/05	Bromomethane	26	86-WOPT-311 86-WOPT-312** 86-WOPT-313 86-WOPT-314 86-WOPT-315 86-WOPT-316 86-WOPT-317** 86-WOPT-318 86-WOPT-319 86-WOPT-322 86-WOPT-323 86-WOPT-324** 86-WOPT-325 86-WOPT-326 86-WOPT-327 86-WOPT-328 86-WOPT-311 MS 86-WOPT-311 MSD 86-WOPT-328MS 86-WOPT-328MSD 050407S 050408S	J (all detects) UJ (all non-detects)	A

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination ( $r^2$ ) was greater than or equal to 0.990 .

Average relative response factors (RRF) for all system performance check compounds (SPCCs) were within method and validation criteria.



#### IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 20.0% for all compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
4/8/05	2-Hexanone Vinyl acetate	28 23	86-WOPT-311 86-WOPT-325 86-WOPT-326 86-WOPT-327 86-WOPT-328 86-WOPT-311MS 86-WOPT-311MSD 86-WOPT-328MS 86-WOPT-328MSD 050408S	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A

All of the continuing calibration RRF values for all system performance check compounds (SPCCs) were within method and validation criteria.

#### V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Analysis Date	Compound TIC (RT in minutes)	Concentration	Associated Samples
050407S	4/7/05	Acetone	11 ug/Kg	86-WOPT-312** 86-WOPT-313 86-WOPT-314 86-WOPT-315 86-WOPT-316 86-WOPT-317** 86-WOPT-318 86-WOPT-319 86-WOPT-322 86-WOPT-323 86-WOPT-324**
050408S	4/8/05	Acetone	7.9 ug/Kg	86-WOPT-311 86-WOPT-325 86-WOPT-326 86-WOPT-327 86-WOPT-328

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
86-WOPT-312**	Acetone	7.6 ug/Kg	130U ug/Kg
86-WOPT-313	Acetone	9.7 ug/Kg	120U ug/Kg
86-WOPT-314	Acetone	8.0 ug/Kg	130U ug/Kg
86-WOPT-315	Acetone	5.3 ug/Kg	120U ug/Kg
86-WOPT-316	Acetone	10 ug/Kg	130U ug/Kg
86-WOPT-317**	Acetone	6.4 ug/Kg	120U ug/Kg
86-WOPT-318	Acetone	7.3 ug/Kg	120U ug/Kg
86-WOPT-319	Acetone	6.4 ug/Kg	130U ug/Kg
86-WOPT-322	Acetone	6.5 ug/Kg	130U ug/Kg
86-WOPT-323	Acetone	7.0 ug/Kg	130U ug/Kg
86-WOPT-324**	Acetone	7.1 ug/Kg	130U ug/Kg
86-WOPT-311	Acetone	16 ug/Kg	130U ug/Kg
86-WOPT-325	Acetone	14 ug/Kg	130U ug/Kg
86-WOPT-326	Acetone	9.5 ug/Kg	120U ug/Kg
86-WOPT-327	Acetone	8.1 ug/Kg	110U ug/Kg
86-WOPT-328	Acetone	5.4 ug/Kg	120U ug/Kg

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Sample)	Compound	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
86-WOPT-311MS/MSD (86-WOPT-311)	Chlorobenzene	-	61.0 (65-135)	37.3 (≤30)	J (all detects) UJ (all non-detects)	A
	Trichloroethene	497 (61-135)	-	101.9 (≤30)	J (all detects) UJ (all non-detects)	
86-WOPT-328MS/MSD (86-WOPT-328)	Trichloroethene	-	-	30.9 (≤30)	J (all detects) UJ (all non-detects)	A

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## IX. Regional Quality Assurance and Quality Control

Not applicable.

## X. Internal Standards

All internal standard areas and retention times were within QC limits with the following exceptions:

Sample	Internal Standards	Area (Limits)	Compound	Flag	A or P
86-WOPT-323	1,4-Dichlorobenzene-d4	138017 (159097-636386)	4-Methyl-2-pentanone	J (all detects) UJ (all non-detects)	A
			1,1,2,2-Tetrachloroethane	J (all detects) UJ (all non-detects)	
86-WOPT-325	1,4-Dichlorobenzene-d4	119376 (120625-482498)	4-Methyl-2-pentanone	J (all detects) UJ (all non-detects)	A
			1,1,2,2-Tetrachloroethane	J (all detects) UJ (all non-detects)	

## XI. Target Compound Identifications

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
86-WOPT-311 86-WOPT-316 86-WOPT-327	cis-1,2-Dichloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	A
86-WOPT-312** 86-WOPT-314 86-WOPT-323 86-WOPT-324**	Tetrachloroethene Trichloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects)	A
86-WOPT-313 86-WOPT-325 86-WOPT-326	cis-1,2-Dichloroethene Tetrachloroethene Trichloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects) J (all detects)	A
86-WOPT-315 86-WOPT-317** 86-WOPT-318 86-WOPT-319 86-WOPT-328	Trichloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	A

Raw data were not evaluated for the samples reviewed by Level III criteria.

## XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

## XIV. System Performance

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## XV. Overall Assessment

Data flags are summarized at the end of this report if data has been qualified.

## XVI. Field Duplicates

No field duplicates were identified in this SDG.

## XVII. Field Blanks

Sample 86-WOPT-310 was identified as a trip blank. No volatile contaminants were found in this blank with the following exceptions:

Trip Blank ID	Compound	Concentration (ug/L)
86-WOPT-310	Acetone	3.6
	Methylene chloride	0.38

Sample 86-WOPT-329\*\* was identified as an equipment rinsate. No volatile contaminants were found in this blank.

**Moffett Air Field, Building 88, CTO 86**  
**Volatiles - Data Qualification Summary - SDG 47052**

SDG	Sample	Compound	Flag	A or P	Reason
47052	86-WOPT-311 86-WOPT-312** 86-WOPT-313 86-WOPT-314 86-WOPT-315 86-WOPT-316 86-WOPT-317** 86-WOPT-318 86-WOPT-319 86-WOPT-322 86-WOPT-323 86-WOPT-324** 86-WOPT-325 86-WOPT-326 86-WOPT-327 86-WOPT-328	Bromomethane	J (all detects) UJ (all non-detects)	A	Initial calibration (%RSD)
47052	86-WOPT-311 86-WOPT-325 86-WOPT-326 86-WOPT-327 86-WOPT-328	2-Hexanone  Vinyl acetate	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
47052	86-WOPT-311	Chlorobenzene  Trichloroethene	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicates (%R) (RPD)
47052	86-WOPT-328	Trichloroethene	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicates (RPD)
47052	88-WOPT-323 86-WOPT-325	4-Methyl-2-pentanone  1,1,2,2-Tetrachloroethane	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Internal standards (area)
47052	86-WOPT-311 86-WOPT-316 86-WOPT-327	cis-1,2-Dichloroethene	J (all detects)	A	Compound quantitation and CROLS
47052	86-WOPT-312** 86-WOPT-314 86-WOPT-323 86-WOPT-324**	Tetrachloroethene Trichloroethene	J (all detects) J (all detects)	A	Compound quantitation and CROLS
47052	86-WOPT-313 86-WOPT-325 86-WOPT-326	cis-1,2-Dichloroethene Tetrachloroethene Trichloroethene	J (all detects) J (all detects) J (all detects)	A	Compound quantitation and CROLS

SDG	Sample	Compound	Flag	A or P	Reason
47052	86-WOPT-315 86-WOPT-317** 86-WOPT-318 86-WOPT-319 86-WOPT-328	Trichloroethene	J (all detects)	A	Compound quantitation and CRQLs

**Moffett Air Field, Building 88, CTO 86**

**Volatiles - Laboratory Blank Data Qualification Summary - SDG 47052**

SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P
47052	86-WOPT-312**	Acetone	130U ug/Kg	A
47052	86-WOPT-313	Acetone	120U ug/Kg	A
47052	86-WOPT-314	Acetone	130U ug/Kg	A
47052	86-WOPT-315	Acetone	120U ug/Kg	A
47052	86-WOPT-316	Acetone	130U ug/Kg	A
47052	86-WOPT-317**	Acetone	120U ug/Kg	A
47052	86-WOPT-318	Acetone	120U ug/Kg	A
47052	86-WOPT-319	Acetone	130U ug/Kg	A
47052	86-WOPT-322	Acetone	130U ug/Kg	A
47052	86-WOPT-323	Acetone	130U ug/Kg	A
47052	86-WOPT-324**	Acetone	130U ug/Kg	A
47052	86-WOPT-311	Acetone	130U ug/Kg	A
47052	86-WOPT-325	Acetone	130U ug/Kg	A
47052	86-WOPT-326	Acetone	120U ug/Kg	A
47052	86-WOPT-327	Acetone	110U ug/Kg	A

SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P
47052	86-WOPT-328	Acetone	120U ug/Kg	A





**TETRA TECH**  
1234 Cedar Street, Suite 100  
San Diego, CA 92101 (619) 234-5678

NUMBER 10349

CHAIN-OF-CUSTODY RECORD

PROJECT NAME		PURCHASE ORDER NO.		ANALYSES REQUIRED		LABORATORY NAME		Project Information	
SAMPLE ID	DATE COLLECTED	TIME COLLECTED	NO OF CONTAINER	LEVEL	T	Y	LABORATORY 2B (For Laboratory Use)	LOCATION	Section Do not submit to Laboratory
				3	4	5		START	DEPTH
								END	QC
Building 88	11/10/15	12:20	4	X	S	W	LABORATORY 2B (For Laboratory Use) K2582412 (CNS)	CC-88-5	415 42 185
Moffett Field, CA	11/10/15	12:30	4	X	S	W		CC-88-5	480 415 185
Wendy Bryant	11/10/15	12:40	4	X	S	W		CC-88-5	505 510 185
Lynn Jefferson	11/10/15	12:50	4	X	S	W		CC-88-5	535 540 185
<div>RECEIVED BY (Signature) 4/18/15 COMPANY TETRA TECH RELINQUISHED BY (Signature) 4/18/15 DATE 4/18/15 TIME 16:00 RECEIVED BY (Signature) DATE TIME COMPANY RELINQUISHED BY (Signature) DATE TIME COMPANY</div>									
LABORATORY INSTRUCTIONS COMMENTS ToC analysis 6 Day TAT									
COMPOSITE DESCRIPTION									
SAMPLE CONDITION UPON RECEIPT (FOR LABORATORY) TEMPERATURE: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN COOLER SEAL: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN									
SAMPLING COMMENT: Continued Coring									



NUMBER 10348

AMPLING COMMENT: Continued

Coring

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management

0047069-121

Data Validation Package  
for

EPA METHOD 8260B  
Volatile Organic Compounds

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# **EPA Method 8260B**

## **Volatile Organic Analysis**

### **Sample Preparation:**

The samples were purged according to EPA method 5030B. All holding times were met.

### **Sample Analysis Information:**

The samples were analyzed according to the method using a Hewlett Packard Gas Chromatograph with a mass spectrometer detector. Samples 86-WOPT-301, 86-WOPT-305, 86-WOPT-306 and 86-WOPT-308 required dilutions. These encores were extruded into methanol for the dilutions.

### **Quality Control/Assurance**

#### **Calibrations:**

Initial and continuing calibrations were performed according to the method. All calibration criteria were met.

#### **Blanks:**

No target analyte was detected above the reporting limits in the method blanks.

#### **Spikes:**

Laboratory Control Spikes (LCS) were used for quality assurance. A second-source standard was used for the LCS. All spike and second-source criteria were met.

Sample 86-WOPT-342 was designated by the client for an MS/MSD analysis. Trichloroethene recovered below the lower limit of 61% in the MS at negative 63.4% and in the MSD at -2.9%. All other recoveries were within acceptance limits.

#### **Surrogates**

All surrogate recoveries were within control limits.

#### **Tuning:**

The instrument was tuned using BFB. All method criteria were met.

#### **Internal Standards**


The internal standard area counts were compared to the mid-point of the initial calibration according to method 8260. All method criteria were met.

### **Summary:**

No additional problem was encountered. All data were acceptable.

## CERTIFICATION

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the hard copy has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

 4/29/05  
\_\_\_\_\_  
Leonard Fong, PhD, Laboratory Director / Date

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990-0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-331

Sample Collection Date: 4/8/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47069

APPL ID: AX17086

QCG: S86TTW-050411AM-8555

Methcd	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/11/05	4/11/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/11/05	4/11/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/11/05	4/11/05
EPA 8260B	1,1-Dichloroethane	Not detected	0.5	0.19	ug/L	4/11/05	4/11/05
EPA 8260B	1,1-Dichloroethene	Not detected	0.5	0.30	ug/L	4/11/05	4/11/05
EPA 8260B	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/11/05	4/11/05
EPA 8260B	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/11/05	4/11/05
EPA 8260B	2-Butanone	Not detected	5	0.6	ug/L	4/11/05	4/11/05
EPA 8260B	2-Hexanone	Not detected	5	0.92	ug/L	4/11/05	4/11/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/11/05	4/11/05
EPA 8260B	Acetone	Not detected	5	0.95	ug/L	4/11/05	4/11/05
EPA 8260B	Benzene	Not detected	0.5	0.16	ug/L	4/11/05	4/11/05
EPA 8260B	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/11/05	4/11/05
EPA 8260B	Bromoform	Not detected	0.5	0.14	ug/L	4/11/05	4/11/05
EPA 8260B	Bromomethane	Not detected	1	0.24	ug/L	4/11/05	4/11/05
EPA 8260B	Carbon disulfide	Not detected	0.5	0.2	ug/L	4/11/05	4/11/05
EPA 8260B	Carbon tetrachloride	Not detected	0.5	0.10	ug/L	4/11/05	4/11/05
EPA 8260B	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/11/05	4/11/05
EPA 8260B	Chloroethene	Not detected	0.5	0.21	ug/L	4/11/05	4/11/05
EPA 8260B	Chloroform	Not detected	0.5	0.16	ug/L	4/11/05	4/11/05
EPA 8260B	Chloromethane	Not detected	0.5	0.31	ug/L	4/11/05	4/11/05
EPA 8260B	cis-1,2-Dichloroethene	Not detected	0.5	0.16	ug/L	4/11/05	4/11/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/11/05	4/11/05
EPA 8260B	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/11/05	4/11/05
EPA 8260B	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/11/05	4/11/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/11/05	4/11/05
EPA 8260B	Methylene chloride	Not detected	5	0.35	ug/L	4/11/05	4/11/05
EPA 8260B	Styrene	Not detected	0.5	0.25	ug/L	4/11/05	4/11/05
EPA 8260B	Tetrachloroethene	Not detected	0.5	0.15	ug/L	4/11/05	4/11/05
EPA 8260B	Toluene	Not detected	0.5	0.17	ug/L	4/11/05	4/11/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	0.5	0.19	ug/L	4/11/05	4/11/05

Run #: 0411M14  
Instrument: Max  
Sequence: M050411  
Dilution Factor: 1  
Initials: LF

Printed: 4/12/05 8:08:39 AM  
APPL-F1-SC-MCRes\MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990-0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-331

Sample Collection Date: 4/8/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47069

APPL ID: AX17086

QCG: \$86TTW-050411AM-8555

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/11/05	4/11/05
EPA 8260B	Trichloroethene	Not detected	0.5	0.16	ug/L	4/11/05	4/11/05
EPA 8260B	Vinyl Acetate	Not detected	5	0.31	ug/L	4/11/05	4/11/05
EPA 8260B	Vinyl chloride	Not detected	0.5	0.23	ug/L	4/11/05	4/11/05
EPA 8260B	Xylenes	Not detected	1.5	0.19	ug/L	4/11/05	4/11/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	97.9	62-139		%	4/11/05	4/11/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	94.9	75-125		%	4/11/05	4/11/05
EPA 8260B	Surrogate recovery: Toluene-d8	99.0	75-125		%	4/11/05	4/11/05

Run #: 0411M14  
Instrument: Max  
Sequence: M050411  
Dilution Factor: 1  
Initials: LF

Printed: 4/12/05 8:08:39 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990-0860 WATS Bldg 88 Moffett Airfield

ARF: 47069

Sample ID: 86-WOPT-332

APPL ID: AX17087

Sample Collection Date: 4/8/05

QCG: \$86TTS-050408AC-85522

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 17.3 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	0.98	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.5	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.58	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,1-Dichloroethane	5.3 J	6	1.4	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,1-Dichloroethene	6.1	6	0.96	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.87	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.75	ug/Kg	4/8/05	4/8/05
EPA 8260B	2-Butanone	Not detected	60	0.86	ug/Kg	4/8/05	4/8/05
EPA 8260B	2-Hexanone	Not detected	60	0.19	ug/Kg	4/8/05	4/8/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	60	1.1	ug/Kg	4/8/05	4/8/05
EPA 8260B	Acetone	7.3 B J	120	3.4	ug/Kg	4/8/05	4/8/05
EPA 8260B	Benzene	Not detected	6	0.76	ug/Kg	4/8/05	4/8/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.83	ug/Kg	4/8/05	4/8/05
EPA 8260B	Bromoform	Not detected	6	0.97	ug/Kg	4/8/05	4/8/05
EPA 8260B	Bromomethane	Not detected	12	1.9	ug/Kg	4/8/05	4/8/05
EPA 8260B	Carbon disulfide	Not detected	6	1.3	ug/Kg	4/8/05	4/8/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.97	ug/Kg	4/8/05	4/8/05
EPA 8260B	Chlorobenzene	Not detected	6	0.59	ug/Kg	4/8/05	4/8/05
EPA 8260B	Chloroethane	Not detected	6	1.9	ug/Kg	4/8/05	4/8/05
EPA 8260B	Chloroform	Not detected	6	1.7	ug/Kg	4/8/05	4/8/05
EPA 8260B	Chloromethane	Not detected	6	2.2	ug/Kg	4/8/05	4/8/05
EPA 8260B	cis-1,2-Dichloroethene	100	6	1.3	ug/Kg	4/8/05	4/8/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.57	ug/Kg	4/8/05	4/8/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.0	ug/Kg	4/8/05	4/8/05
EPA 8260B	Ethylbenzene	Not detected	6	0.77	ug/Kg	4/8/05	4/8/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/8/05	4/8/05
EPA 8260B	Methylene chloride	Not detected	60	5.5	ug/Kg	4/8/05	4/8/05
EPA 8260B	Styrene	Not detected	6	0.83	ug/Kg	4/8/05	4/8/05
EPA 8260B	Tetrachloroethene	110	6	0.65	ug/Kg	4/8/05	4/8/05
EPA 8260B	Toluene	Not detected	6	0.79	ug/Kg	4/8/05	4/8/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.6	ug/Kg	4/8/05	4/8/05

J = Estimated value, below quantitation limit.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0408C07

Instrument: Chico

Sequence: C050407B

Dilution Factor: 1

Initials: LF

Printed: 4/11/05 12:22:29 PM

APPL-F1-SC-MCRes/MCPQL-REG MDLs



## EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990-0860 WATS Bldg 88 Moffett Airfield

ARF: 47069

Sample ID: 86-WOPT-332

APPL ID: AX17087

Sample Collection Date: 4/8/05

QCG: \$86TTS-050408AC-85522

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.52	ug/Kg	4/8/05	4/8/05
EPA 8260B	Trichloroethene	350	6	0.86	ug/Kg	4/8/05	4/8/05
EPA 8260B	Vinyl Acetate	Not detected	60	1.2	ug/Kg	4/8/05	4/8/05
EPA 8260B	Vinyl chloride	Not detected	6	2.0	ug/Kg	4/8/05	4/8/05
EPA 8260B	Xylenes	Not detected	18	0.82	ug/Kg	4/8/05	4/8/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	119	52-149		%	4/8/05	4/8/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	97.5	65-135		%	4/8/05	4/8/05
EPA 8260B	Surrogate recovery: Toluene-d8	94.1	65-135		%	4/8/05	4/8/05

J = Estimated value, below quantitation limit.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0408C07  
Instrument: Chico  
Sequence: C050407B  
Dilution Factor: 1  
Initials: LF

Printed 4/11/05 12:22:29 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990-0860 WATS Bldg 88 Moffett Airfield

ARF: 47069

Sample ID: 86-WOPT-333

APPL ID: AX17088

Sample Collection Date: 4/8/05

QCQ: S86TTS-050408AC-85522

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 22.1 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	1.0	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.6	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.62	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,1-Dichloroethane	4.4 J	6	1.4	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,1-Dichloroethene	7.0	6	1.0	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.92	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.80	ug/Kg	4/8/05	4/8/05
EPA 8260B	2-Butanone	Not detected	64	0.91	ug/Kg	4/8/05	4/8/05
EPA 8260B	2-Hexanone	Not detected	64	0.21	ug/Kg	4/8/05	4/8/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	64	1.2	ug/Kg	4/8/05	4/8/05
EPA 8260B	Acetone	7.9 B J	130	3.6	ug/Kg	4/8/05	4/8/05
EPA 8260B	Benzene	Not detected	6	0.81	ug/Kg	4/8/05	4/8/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.89	ug/Kg	4/8/05	4/8/05
EPA 8260B	Bromoform	Not detected	6	1.0	ug/Kg	4/8/05	4/8/05
EPA 8260B	Bromomethane	Not detected	13	2.0	ug/Kg	4/8/05	4/8/05
EPA 8260B	Carbon disulfide	Not detected	6	1.4	ug/Kg	4/8/05	4/8/05
EPA 8260B	Carbon tetrachloride	Not detected	6	1.0	ug/Kg	4/8/05	4/8/05
EPA 8260B	Chlorobenzene	Not detected	6	0.63	ug/Kg	4/8/05	4/8/05
EPA 8260B	Chloroethane	Not detected	6	2.0	ug/Kg	4/8/05	4/8/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	4/8/05	4/8/05
EPA 8260B	Chloromethane	Not detected	6	2.3	ug/Kg	4/8/05	4/8/05
EPA 8260B	cis-1,2-Dichloroethene	370 E	6	1.4	ug/Kg	4/8/05	4/8/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.60	ug/Kg	4/8/05	4/8/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.1	ug/Kg	4/8/05	4/8/05
EPA 8260B	Ethylbenzene	Not detected	6	0.82	ug/Kg	4/8/05	4/8/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/8/05	4/8/05
EPA 8260B	Methylene chloride	Not detected	64	5.9	ug/Kg	4/8/05	4/8/05
EPA 8260B	Styrene	Not detected	6	0.89	ug/Kg	4/8/05	4/8/05
EPA 8260B	Tetrachloroethene	Not detected	6	0.69	ug/Kg	4/8/05	4/8/05
EPA 8260B	Toluene	Not detected	6	0.83	ug/Kg	4/8/05	4/8/05
EPA 8260B	trans-1,2-Dichloroethene	25	6	1.7	ug/Kg	4/8/05	4/8/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0408C08  
Instrument: Chico  
Sequence: C050407B  
Dilution Factor: 1  
Initials: LF

Printed: 4/11/05 12 22 29 PM  
APPL-F1-SC-MCRes/MCQPL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990-0860 WATS Bldg 88 Moffett Airfield

ARF: 47069

Sample ID: 86-WOPT-333

APPL ID: AX17088

Sample Collection Date: 4/8/05

QCG: \$86TTS-050408AC-85522

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.55	ug/Kg	4/8/05	4/8/05
EPA 8260B	Trichloroethene	5.7 J	6	0.91	ug/Kg	4/8/05	4/8/05
EPA 8260B	Vinyl Acetate	Not detected	64	1.3	ug/Kg	4/8/05	4/8/05
EPA 8260B	Vinyl chloride	Not detected	6	2.2	ug/Kg	4/8/05	4/8/05
EPA 8260B	Xylenes	Not detected	19	0.87	ug/Kg	4/8/05	4/8/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	113	52-149		%	4/8/05	4/8/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	103	65-135		%	4/8/05	4/8/05
EPA 8260B	Surrogate recovery: Toluene-d8	95.1	65-135		%	4/8/05	4/8/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.  
B = The analyte was found in a method blank, as well as in the sample.

Run #: 0408C08  
Instrument: Chico  
Sequence: C050407B  
Dilution Factor: 1  
Initials: LF

Printed 4/11/05 12:22:29 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990-0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-333

Sample Collection Date: 4/8/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47069

APPL ID: AX17088

QCG: S86TTD-050410AN-85563

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 22.1 Percent Moisture.)							
EPA 8260B-	cis-1,2-Dichloroethene	430	32	10	ug/Kg	4/11/05	4/11/05
EPA 8260B-	Surrogate recovery: 1,2-Dichloroethane	84.1	52-149		%	4/11/05	4/11/05
EPA 8260B-	Surrogate recovery: 4-Bromofluorobenz	93.2	65-135		%	4/11/05	4/11/05
EPA 8260B-	Surrogate recovery: Toluene-d8	88.8	65-135		%	4/11/05	4/11/05

Run #: 0410N14  
Instrument: Neo  
Sequence: N050407  
Dilution Factor: 50  
Initials: LF

Printed 4/12/05 11:45:19 AM  
APPL-F1-SC-MCRes#MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990-0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-334

Sample Collection Date: 4/8/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47069

APPL ID: AX17089

CCG: S86TTS-050408AC-85522

Method	Analyte	Result	FQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 21.4 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	1.0	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.6	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.61	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,1-Dichloroethane	4.2 J	6	1.4	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,1-Dichloroethene	6.6	6	1.0	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.92	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.79	ug/Kg	4/8/05	4/8/05
EPA 8260B	2-Butanone	Not detected	64	0.90	ug/Kg	4/8/05	4/8/05
EPA 8260B	2-Hexanone	Not detected	64	0.20	ug/Kg	4/8/05	4/8/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	64	1.2	ug/Kg	4/8/05	4/8/05
EPA 8260B	Acetone	5.6 B J	130	3.6	ug/Kg	4/8/05	4/8/05
EPA 8260B	Benzene	Not detected	6	0.80	ug/Kg	4/8/05	4/8/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.88	ug/Kg	4/8/05	4/8/05
EPA 8260B	Bromoform	Not detected	6	1.0	ug/Kg	4/8/05	4/8/05
EPA 8260B	Bromomethane	Not detected	13	2.0	ug/Kg	4/8/05	4/8/05
EPA 8260B	Carbon disulfide	Not detected	6	1.4	ug/Kg	4/8/05	4/8/05
EPA 8260B	Carbon tetrachloride	Not detected	6	1.0	ug/Kg	4/8/05	4/8/05
EPA 8260B	Chlorobenzene	Not detected	6	0.62	ug/Kg	4/8/05	4/8/05
EPA 8260B	Chloroethane	Not detected	6	2.0	ug/Kg	4/8/05	4/8/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	4/8/05	4/8/05
EPA 8260B	Chloromethane	Not detected	6	2.3	ug/Kg	4/8/05	4/8/05
EPA 8260B	cis-1,2-Dichloroethene	38	6	1.4	ug/Kg	4/8/05	4/8/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.60	ug/Kg	4/8/05	4/8/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.1	ug/Kg	4/8/05	4/8/05
EPA 8260B	Ethylbenzene	Not detected	6	0.81	ug/Kg	4/8/05	4/8/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/8/05	4/8/05
EPA 8260B	Methylene chloride	Not detected	64	5.8	ug/Kg	4/8/05	4/8/05
EPA 8260B	Styrene	Not detected	6	0.88	ug/Kg	4/8/05	4/8/05
EPA 8260B	Tetrachloroethene	14	6	0.69	ug/Kg	4/8/05	4/8/05
EPA 8260B	Toluene	Not detected	6	0.83	ug/Kg	4/8/05	4/8/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.7	ug/Kg	4/8/05	4/8/05

J = Estimated value, below quantitation limit.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0408C09  
Instrument: Chico  
Sequence: C050407B  
Dilution Factor: 1  
Initials: LF

Printed: 4/11/05 12:22:29 PM  
APPL-F1-SC-MCRes/MCPOL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990-0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-334

Sample Collection Date: 4/8/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47069

APPL ID: AX17089

QCG: S86TTS-050408AC-85522

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.55	ug/Kg	4/8/05	4/8/05
EPA 8260B	Trichloroethene	96	6	0.90	ug/Kg	4/8/05	4/8/05
EPA 8260B	Vinyl Acetate	Not detected	64	1.3	ug/Kg	4/8/05	4/8/05
EPA 8260B	Vinyl chloride	Not detected	6	2.1	ug/Kg	4/8/05	4/8/05
EPA 8260B	Xylenes	Not detected	19	0.87	ug/Kg	4/8/05	4/8/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	115	52-149		%	4/8/05	4/8/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	104	65-135		%	4/8/05	4/8/05
EPA 8260B	Surrogate recovery: Toluene-d8	96.0	65-135		%	4/8/05	4/8/05

J = Estimated value, below quantitation limit.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0408C09  
Instrument: Chico  
Sequence: C050407B  
Dilution Factor: 1  
Initials: LF

Printed: 4/11/05 12 22 29 PM  
APPL-F1-SC-MCRes:MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990-0860 WATS Bldg 88 Moffett Airfield

ARF: 47069

Sample ID: 86-WOPT-335

APPL ID: AX17090

Sample Collection Date: 4/8/05

CCG: \$86TTS-050408AC-85522

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 14.5 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	0.95	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.4	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.56	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,1-Dichloroethane	2.7 J	6	1.3	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,1-Dichloroethane	4.6 J	6	0.92	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.84	ug/Kg	4/8/05	4/8/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.73	ug/Kg	4/8/05	4/8/05
EPA 8260B	2-Butanone	Not detected	58	0.83	ug/Kg	4/8/05	4/8/05
EPA 8260B	2-Hexanone	Not detected	58	0.19	ug/Kg	4/8/05	4/8/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	58	1.1	ug/Kg	4/8/05	4/8/05
EPA 8260B	Acetone	6.0 B J	120	3.3	ug/Kg	4/8/05	4/8/05
EPA 8260B	Benzene	Not detected	6	0.74	ug/Kg	4/8/05	4/8/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.81	ug/Kg	4/8/05	4/8/05
EPA 8260B	Bromoform	Not detected	6	0.94	ug/Kg	4/8/05	4/8/05
EPA 8260B	Bromomethane	Not detected	12	1.9	ug/Kg	4/8/05	4/8/05
EPA 8260B	Carbon disulfide	Not detected	6	1.3	ug/Kg	4/8/05	4/8/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.94	ug/Kg	4/8/05	4/8/05
EPA 8260B	Chlorobenzene	Not detected	6	0.57	ug/Kg	4/8/05	4/8/05
EPA 8260B	Chloroethane	Not detected	6	1.8	ug/Kg	4/8/05	4/8/05
EPA 8260B	Chloroform	Not detected	6	1.7	ug/Kg	4/8/05	4/8/05
EPA 8260B	Chloromethane	Not detected	6	2.1	ug/Kg	4/8/05	4/8/05
EPA 8260B	cis-1,2-Dichloroethene	62	6	1.2	ug/Kg	4/8/05	4/8/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.55	ug/Kg	4/8/05	4/8/05
EPA 8260B	Dibromochloromethane	Not detected	6	0.99	ug/Kg	4/8/05	4/8/05
EPA 8260B	Ethylbenzene	Not detected	6	0.75	ug/Kg	4/8/05	4/8/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.0	ug/Kg	4/8/05	4/8/05
EPA 8260B	Methylene chloride	Not detected	58	5.4	ug/Kg	4/8/05	4/8/05
EPA 8260B	Styrene	Not detected	6	0.81	ug/Kg	4/8/05	4/8/05
EPA 8260B	Tetrachloroethene	2.1 J	6	0.63	ug/Kg	4/8/05	4/8/05
EPA 8260B	Toluene	Not detected	6	0.76	ug/Kg	4/8/05	4/8/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.6	ug/Kg	4/8/05	4/8/05

J = Estimated value, below quantitation limit.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0408C10  
Instrument: Chico  
Sequence: C050407B  
Dilution Factor: 1  
Initials: LF

Printed: 4/11/05 12:22:29 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990-0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-335

Sample Collection Date: 4/8/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47069

APPL ID: AX17090

QCG: \$86TTS-050408AC-85522

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloroprcpene	Not detected	6	0.50	ug/Kg	4/8/05	4/8/05
EPA 8260B	Trichloroethene	290	6	0.83	ug/Kg	4/8/05	4/8/05
EPA 8260B	Vinyl Acetate	Not detected	58	1.2	ug/Kg	4/8/05	4/8/05
EPA 8260B	Vinyl chloride	Not detected	6	2.0	ug/Kg	4/8/05	4/8/05
EPA 8260B	Xylenes	Not detected	18	0.80	ug/Kg	4/8/05	4/8/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	107	52-149		%	4/8/05	4/8/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	101	65-135		%	4/8/05	4/8/05
EPA 8260B	Surrogate recovery: Toluene-d8	95.6	65-135		%	4/8/05	4/8/05

J = Estimated value, below quantitation limit.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0408C10  
Instrument: Chico  
Sequence: C050407B  
Dilution Factor: 1  
Initials: LF

Printed: 4/11/05 12:22:29 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990-0860 WATS Bldg 88 Moffett Airfield

ARF: 47069

Sample ID: 86-WOPT-336

APPL ID: AX17091

Sample Collection Date: 4/8/05

CCG: \$86TTS-050408AC-85522

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 17.9 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	0.99	ug/Kg	4/9/05	4/9/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.5	ug/Kg	4/9/05	4/9/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.58	ug/Kg	4/9/05	4/9/05
EPA 8260B	1,1-Dichloroethane	Not detected	6	1.4	ug/Kg	4/9/05	4/9/05
EPA 8260B	1,1-Dichloroethene	3.5 J	6	0.96	ug/Kg	4/9/05	4/9/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.88	ug/Kg	4/9/05	4/9/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.76	ug/Kg	4/9/05	4/9/05
EPA 8260B	2-Butanone	Not detected	61	0.86	ug/Kg	4/9/05	4/9/05
EPA 8260B	2-Hexanone	Not detected	61	0.19	ug/Kg	4/9/05	4/9/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	61	1.1	ug/Kg	4/9/05	4/9/05
EPA 8260B	Acetone	7.5 B J	120	3.4	ug/Kg	4/9/05	4/9/05
EPA 8260B	Benzene	Not detected	6	0.77	ug/Kg	4/9/05	4/9/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.84	ug/Kg	4/9/05	4/9/05
EPA 8260B	Bromoform	Not detected	6	0.97	ug/Kg	4/9/05	4/9/05
EPA 8260B	Bromomethane	Not detected	12	2.0	ug/Kg	4/9/05	4/9/05
EPA 8260B	Carbon disulfide	Not detected	6	1.3	ug/Kg	4/9/05	4/9/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.97	ug/Kg	4/9/05	4/9/05
EPA 8260B	Chlorobenzene	Not detected	6	0.60	ug/Kg	4/9/05	4/9/05
EPA 8260B	Chloroethane	Not detected	6	1.9	ug/Kg	4/9/05	4/9/05
EPA 8260B	Chloroform	Not detected	6	1.7	ug/Kg	4/9/05	4/9/05
EPA 8260B	Chloromethane	Not detected	6	2.2	ug/Kg	4/9/05	4/9/05
EPA 8260B	cis-1,2-Dichloroethene	12	6	1.3	ug/Kg	4/9/05	4/9/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.57	ug/Kg	4/9/05	4/9/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.0	ug/Kg	4/9/05	4/9/05
EPA 8260B	Ethylbenzene	Not detected	6	0.78	ug/Kg	4/9/05	4/9/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/9/05	4/9/05
EPA 8260B	Methylene chloride	Not detected	61	5.6	ug/Kg	4/9/05	4/9/05
EPA 8260B	Styrene	Not detected	6	0.84	ug/Kg	4/9/05	4/9/05
EPA 8260B	Tetrachloroethene	Not detected	6	0.66	ug/Kg	4/9/05	4/9/05
EPA 8260B	Toluene	Not detected	6	0.79	ug/Kg	4/9/05	4/9/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.6	ug/Kg	4/9/05	4/9/05

J = Estimated value, below quantitation limit.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0408C11  
Instrument: Chico  
Sequence: C050407B  
Dilution Factor: 1  
Initials: LF

Printed: 4/11/05 12:22:29 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990-0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-336

Sample Collection Date: 4/8/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47069

APPL ID: AX17091

QCG: \$86TTS-050408AC-85522

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.52	ug/Kg	4/9/05	4/9/05
EPA 8260B	Trichloroethene	220	6	0.86	ug/Kg	4/9/05	4/9/05
EPA 8260B	Vinyl Acetate	Not detected	61	1.2	ug/Kg	4/9/05	4/9/05
EPA 8260B	Vinyl chloride	Not detected	6	2.0	ug/Kg	4/9/05	4/9/05
EPA 8260B	Xylenes	Not detected	18	0.83	ug/Kg	4/9/05	4/9/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	120	52-149		%	4/9/05	4/9/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	104	65-135		%	4/9/05	4/9/05
EPA 8260B	Surrogate recovery: Toluene-d8	94.7	65-135		%	4/9/05	4/9/05

J = Estimated value, below quantitation limit.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0408C11  
Instrument: Chico  
Sequence: C050407B  
Dilution Factor: 1  
Initials: LF

Printed 4/11/05 12:22:29 PM  
APPL-F1-SC-MCRes\MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Blenkowski

Project: 1990-0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-337

Sample Collection Date: 4/8/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47069

APPL ID: AX17092

CCG: \$86TTS-050408AC-85522

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 18.9 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	1.0	ug/Kg	4/9/05	4/9/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.5	ug/Kg	4/9/05	4/9/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.59	ug/Kg	4/9/05	4/9/05
EPA 8260B	1,1-Dichloroethane	Not detected	6	1.4	ug/Kg	4/9/05	4/9/05
EPA 8260B	1,1-Dichloroethene	Not detected	6	0.97	ug/Kg	4/9/05	4/9/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.89	ug/Kg	4/9/05	4/9/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.76	ug/Kg	4/9/05	4/9/05
EPA 8260B	2-Butanone	Not detected	62	0.88	ug/Kg	4/9/05	4/9/05
EPA 8260B	2-Hexanone	Not detected	62	0.20	ug/Kg	4/9/05	4/9/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	62	1.1	ug/Kg	4/9/05	4/9/05
EPA 8260B	Acetone	8.1 B J	120	3.5	ug/Kg	4/9/05	4/9/05
EPA 8260B	Benzene	Not detected	6	0.78	ug/Kg	4/9/05	4/9/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.85	ug/Kg	4/9/05	4/9/05
EPA 8260B	Bromoform	Not detected	6	0.99	ug/Kg	4/9/05	4/9/05
EPA 8260B	Bromomethane	Not detected	12	2.0	ug/Kg	4/9/05	4/9/05
EPA 8260B	Carbon disulfide	Not detected	6	1.3	ug/Kg	4/9/05	4/9/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.99	ug/Kg	4/9/05	4/9/05
EPA 8260B	Chlorobenzene	Not detected	6	0.60	ug/Kg	4/9/05	4/9/05
EPA 8260B	Chloroethane	Not detected	6	1.9	ug/Kg	4/9/05	4/9/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	4/9/05	4/9/05
EPA 8260B	Chloromethane	Not detected	6	2.2	ug/Kg	4/9/05	4/9/05
EPA 8260B	cis-1,2-Dichloroethene	Not detected	6	1.3	ug/Kg	4/9/05	4/9/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.58	ug/Kg	4/9/05	4/9/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.0	ug/Kg	4/9/05	4/9/05
EPA 8260B	Ethylbenzene	Not detected	6	0.79	ug/Kg	4/9/05	4/9/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/9/05	4/9/05
EPA 8260B	Methylene chloride	Not detected	62	5.6	ug/Kg	4/9/05	4/9/05
EPA 8260B	Styrene	Not detected	6	0.85	ug/Kg	4/9/05	4/9/05
EPA 8260B	Tetrachloroethene	Not detected	6	0.67	ug/Kg	4/9/05	4/9/05
EPA 8260B	Toluene	Not detected	6	0.80	ug/Kg	4/9/05	4/9/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.7	ug/Kg	4/9/05	4/9/05

J = Estimated value, below quantitation limit.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0408C12

Instrument: Chico

Sequence: C050407B

Dilution Factor: 1

Initials: LF

Printed: 4/11/05 12:22:29 PM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

## EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990-0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-337

Sample Collection Date: 4/8/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47069

APPL ID: AX17092

QCG: \$86TTS-050408AC-85522

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.53	ug/Kg	4/9/05	4/9/05
EPA 8260B	Trichloroethene	Not detected	6	0.88	ug/Kg	4/9/05	4/9/05
EPA 8260B	Vinyl Acetate	Not detected	62	1.2	ug/Kg	4/9/05	4/9/05
EPA 8260B	Vinyl chloride	Not detected	6	2.1	ug/Kg	4/9/05	4/9/05
EPA 8260B	Xylenes	Not detected	18	0.84	ug/Kg	4/9/05	4/9/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	120	52-149		%	4/9/05	4/9/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	97.6	65-135		%	4/9/05	4/9/05
EPA 8260B	Surrogate recovery: Toluene-d8	92.7	65-135		%	4/9/05	4/9/05

J = Estimated value, below quantitation limit.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0408C12  
Instrument: Chico  
Sequence: C050407B  
Dilution Factor: 1  
Initials: LF

Printed: 4/11/05 12:22:29 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990-0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-341

Sample Collection Date: 4/8/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47069

APPL ID: AX17093

QCG: S86TTS-050408AC-85522

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 20.5 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	1.0	ug/Kg	4/9/05	4/9/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.6	ug/Kg	4/9/05	4/9/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.60	ug/Kg	4/9/05	4/9/05
EPA 8260B	1,1-Dichloroethane	Not detected	6	1.4	ug/Kg	4/9/05	4/9/05
EPA 8260B	1,1-Dichloroethene	2.1 J	6	0.99	ug/Kg	4/9/05	4/9/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.91	ug/Kg	4/9/05	4/9/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.78	ug/Kg	4/9/05	4/9/05
EPA 8260B	2-Butanone	Not detected	63	0.89	ug/Kg	4/9/05	4/9/05
EPA 8260B	2-Hexanone	Not detected	63	0.20	ug/Kg	4/9/05	4/9/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	63	1.2	ug/Kg	4/9/05	4/9/05
EPA 8260B	Acetone	5.8 B J	130	3.5	ug/Kg	4/9/05	4/9/05
EPA 8260B	Benzene	Not detected	6	0.79	ug/Kg	4/9/05	4/9/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.87	ug/Kg	4/9/05	4/9/05
EPA 8260B	Bromoform	Not detected	6	1.0	ug/Kg	4/9/05	4/9/05
EPA 8260B	Bromomethane	Not detected	13	2.0	ug/Kg	4/9/05	4/9/05
EPA 8260B	Carbon disulfide	Not detected	6	1.4	ug/Kg	4/9/05	4/9/05
EPA 8260B	Carbon tetrachloride	Not detected	6	1.0	ug/Kg	4/9/05	4/9/05
EPA 8260B	Chlorobenzene	Not detected	6	0.62	ug/Kg	4/9/05	4/9/05
EPA 8260B	Chloroethane	Not detected	6	2.0	ug/Kg	4/9/05	4/9/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	4/9/05	4/9/05
EPA 8260B	Chloromethane	Not detected	6	2.3	ug/Kg	4/9/05	4/9/05
EPA 8260B	cis-1,2-Dichloroethene	63	6	1.4	ug/Kg	4/9/05	4/9/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.59	ug/Kg	4/9/05	4/9/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.1	ug/Kg	4/9/05	4/9/05
EPA 8260B	Ethylbenzene	Not detected	6	0.81	ug/Kg	4/9/05	4/9/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/9/05	4/9/05
EPA 8260B	Methylene chloride	Not detected	63	5.8	ug/Kg	4/9/05	4/9/05
EPA 8260B	Styrene	Not detected	6	0.87	ug/Kg	4/9/05	4/9/05
EPA 8260B	Tetrachloroethene	1.8 J	6	0.68	ug/Kg	4/9/05	4/9/05
EPA 8260B	Toluene	Not detected	6	0.82	ug/Kg	4/9/05	4/9/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.7	ug/Kg	4/9/05	4/9/05

J = Estimated value, below quantitation limit.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0408C13  
Instrument: Chico  
Sequence: C050407B  
Dilution Factor: 1  
Initials: LF

Printed 4/11/05 12:22:29 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990-0860 WATS Bldg 88 Moffett Airfield

ARF: 47069

Sample ID: 86-WOPT-341

APPL ID: AX17093

Sample Collection Date: 4/8/05

QCG: S86TTS-050408AC-85522

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.54	ug/Kg	4/9/05	4/9/05
EPA 8260B	Trichloroethene	180	6	0.89	ug/Kg	4/9/05	4/9/05
EPA 8260B	Vinyl Acetate	Not detected	63	1.3	ug/Kg	4/9/05	4/9/05
EPA 8260B	Vinyl chloride	Not detected	6	2.1	ug/Kg	4/9/05	4/9/05
EPA 8260B	Xylenes	Not detected	19	0.86	ug/Kg	4/9/05	4/9/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	109	52-149		%	4/9/05	4/9/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	99.3	65-135		%	4/9/05	4/9/05
EPA 8260B	Surrogate recovery: Toluene-d8	94.3	65-135		%	4/9/05	4/9/05

J = Estimated value, below quantitation limit.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0408C13  
Instrument: Chico  
Sequence: C050407B  
Dilution Factor: 1  
Initials: LF

Printed 4/11/05 12:22:29 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990-0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-342

Sample Collection Date: 4/8/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47069

APPL ID: AX17094

CCG: \$86TTS-050408BC-85525

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 22.8 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	7	1.0	ug/Kg	4/9/05	4/9/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	7	1.6	ug/Kg	4/9/05	4/9/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	7	0.62	ug/Kg	4/9/05	4/9/05
EPA 8260B	1,1-Dichloroethane	4.5 J	7	1.5	ug/Kg	4/9/05	4/9/05
EPA 8260B	1,1-Dichloroethene	7.7	7	1.0	ug/Kg	4/9/05	4/9/05
EPA 8260B	1,2-Dichloroethane	Not detected	7	0.93	ug/Kg	4/9/05	4/9/05
EPA 8260B	1,2-Dichloropropane	Not detected	7	0.80	ug/Kg	4/9/05	4/9/05
EPA 8260B	2-Butanone	Not detected	65	0.92	ug/Kg	4/9/05	4/9/05
EPA 8260B	2-Hexanone	Not detected	65	0.21	ug/Kg	4/9/05	4/9/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	65	1.2	ug/Kg	4/9/05	4/9/05
EPA 8260B	Acetone	8.1 B J	130	3.6	ug/Kg	4/9/05	4/9/05
EPA 8260B	Benzene	Not detected	7	0.82	ug/Kg	4/9/05	4/9/05
EPA 8260B	Bromodichloromethane	Not detected	7	0.89	ug/Kg	4/9/05	4/9/05
EPA 8260B	Bromoform	Not detected	7	1.0	ug/Kg	4/9/05	4/9/05
EPA 8260B	Bromomethane	Not detected	13	2.1	ug/Kg	4/9/05	4/9/05
EPA 8260B	Carbon disulfide	Not detected	7	1.4	ug/Kg	4/9/05	4/9/05
EPA 8260B	Carbon tetrachloride	Not detected	7	1.0	ug/Kg	4/9/05	4/9/05
EPA 8260B	Chlorobenzene	Not detected	7	0.63	ug/Kg	4/9/05	4/9/05
EPA 8260B	Chloroethane	Not detected	7	2.0	ug/Kg	4/9/05	4/9/05
EPA 8260B	Chloroform	Not detected	7	1.8	ug/Kg	4/9/05	4/9/05
EPA 8260B	Chloromethane	Not detected	7	2.4	ug/Kg	4/9/05	4/9/05
EPA 8260B	cis-1,2-Dichloroethene	320	7	1.4	ug/Kg	4/9/05	4/9/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	7	0.61	ug/Kg	4/9/05	4/9/05
EPA 8260B	Dibromochloromethane	Not detected	7	1.1	ug/Kg	4/9/05	4/9/05
EPA 8260B	Ethylbenzene	Not detected	7	0.83	ug/Kg	4/9/05	4/9/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	7	1.1	ug/Kg	4/9/05	4/9/05
EPA 8260B	Methylene chloride	Not detected	65	5.9	ug/Kg	4/9/05	4/9/05
EPA 8260B	Styrene	Not detected	7	0.89	ug/Kg	4/9/05	4/9/05
EPA 8260B	Tetrachloroethene	5.2 J	7	0.70	ug/Kg	4/9/05	4/9/05
EPA 8260B	Toluene	Not detected	7	0.84	ug/Kg	4/9/05	4/9/05
EPA 8260B	trans-1,2-Dichloroethene	2.0 J	7	1.8	ug/Kg	4/9/05	4/9/05

J = Estimated value, below quantitation limit.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0408C26  
Instrument: Chico  
Sequence: C050407B  
Dilution Factor: 1  
Initials: LF

Printed: 4/11/05 12:22:30 PM  
APPL-F1-SC-MCRes/MCPL-REG MDLs

## EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990-0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-342

Sample Collection Date: 4/8/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47069

APPL ID: AX17094

QCG: \$86TTS-050408BC-85525

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	7	0.56	ug/Kg	4/9/05	4/9/05
EPA 8260B	Trichloroethene	170	7	0.92	ug/Kg	4/9/05	4/9/05
EPA 8260B	Vinyl Acetate	Not detected	65	1.3	ug/Kg	4/9/05	4/9/05
EPA 8260B	Vinyl chloride	Not detected	7	2.2	ug/Kg	4/9/05	4/9/05
EPA 8260B	Xylenes	Not detected	19	0.88	ug/Kg	4/9/05	4/9/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	103	52-149		%	4/9/05	4/9/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	101	65-135		%	4/9/05	4/9/05
EPA 8260B	Surrogate recovery: Toluene-d8	98.0	65-135		%	4/9/05	4/9/05

J = Estimated value, below quantitation limit.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0408C26  
Instrument: Chico  
Sequence: C050407B  
Dilution Factor: 1  
Initials: LF

Printed: 4/11/05 12:22:30 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990-0860 WATS Bldg 88 Moffett Airfield

ARF: 47069

Sample ID: 86-WOPT-343

APPL ID: AX17095

Sample Collection Date: 4/8/05

QCG: S86TTS-050408AC-85522

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 20.4 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	1.0	ug/Kg	4/9/05	4/9/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.6	ug/Kg	4/9/05	4/9/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.60	ug/Kg	4/9/05	4/9/05
EPA 8260B	1,1-Dichloroethane	8.0	6	1.4	ug/Kg	4/9/05	4/9/05
EPA 8260B	1,1-Dichloroethene	17	6	0.99	ug/Kg	4/9/05	4/9/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.90	ug/Kg	4/9/05	4/9/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.78	ug/Kg	4/9/05	4/9/05
EPA 8260B	2-Butanone	Not detected	63	0.89	ug/Kg	4/9/05	4/9/05
EPA 8260B	2-Hexanone	Not detected	63	0.20	ug/Kg	4/9/05	4/9/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	63	1.2	ug/Kg	4/9/05	4/9/05
EPA 8260B	Acetone	7.3 B J	130	3.5	ug/Kg	4/9/05	4/9/05
EPA 8260B	Benzene	Not detected	6	0.79	ug/Kg	4/9/05	4/9/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.87	ug/Kg	4/9/05	4/9/05
EPA 8260B	Bromoform	Not detected	6	1.0	ug/Kg	4/9/05	4/9/05
EPA 8260B	Bromomethane	Not detected	13	2.0	ug/Kg	4/9/05	4/9/05
EPA 8260B	Carbon disulfide	Not detected	6	1.4	ug/Kg	4/9/05	4/9/05
EPA 8260B	Carbon tetrachloride	Not detected	6	1.0	ug/Kg	4/9/05	4/9/05
EPA 8260B	Chlorobenzene	Not detected	6	0.62	ug/Kg	4/9/05	4/9/05
EPA 8260B	Chloroethane	Not detected	6	2.0	ug/Kg	4/9/05	4/9/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	4/9/05	4/9/05
EPA 8260B	Chloromethane	Not detected	6	2.3	ug/Kg	4/9/05	4/9/05
EPA 8260B	cis-1,2-Dichloroethene	150	6	1.3	ug/Kg	4/9/05	4/9/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.59	ug/Kg	4/9/05	4/9/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.1	ug/Kg	4/9/05	4/9/05
EPA 8260B	Ethylbenzene	Not detected	6	0.80	ug/Kg	4/9/05	4/9/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/9/05	4/9/05
EPA 8260B	Methylene chloride	Not detected	63	5.8	ug/Kg	4/9/05	4/9/05
EPA 8260B	Styrene	Not detected	6	0.87	ug/Kg	4/9/05	4/9/05
EPA 8260B	Tetrachloroethene	2.0 J	6	0.68	ug/Kg	4/9/05	4/9/05
EPA 8260B	Toluene	Not detected	6	0.82	ug/Kg	4/9/05	4/9/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.7	ug/Kg	4/9/05	4/9/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0408C14

Instrument: Chico

Sequence: C050407B

Dilution Factor: 1

Initials: LF

Printed 4/11/05 12:22:30 PM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

## EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990-0860 WATS Bldg 88 Moffett Airfield

ARF: 47069

Sample ID: 86-WOPT-343

APPL ID: AX17095

Sample Collection Date: 4/8/05

QCG: \$86TTS-050408AC-85522

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.54	ug/Kg	4/9/05	4/9/05
EPA 8260B	Trichloroethene	770 E	6	0.89	ug/Kg	4/9/05	4/9/05
EPA 8260B	Vinyl Acetate	Not detected	63	1.3	ug/Kg	4/9/05	4/9/05
EPA 8260B	Vinyl chloride	Not detected	6	2.1	ug/Kg	4/9/05	4/9/05
EPA 8260B	Xylenes	Not detected	19	0.85	ug/Kg	4/9/05	4/9/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	108	52-149		%	4/9/05	4/9/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	100	65-135		%	4/9/05	4/9/05
EPA 8260B	Surrogate recovery: Toluene-d8	97.3	65-135		%	4/9/05	4/9/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0408C14  
Instrument: Chico  
Sequence: C050407B  
Dilution Factor: 1  
Initials: LF

Printed: 4/11/05 12 22 30 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990-0860 WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-343**

Sample Collection Date: 4/8/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47069

**APPL ID: AX17095**

QCG: S86TTD-050410AN-85563

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 20.4 Percent Moisture.)							
EPA 8260B-	Trichloroethene	660	31	10	ug/Kg	4/11/05	4/11/05
EPA 8260B-	Surrogate recovery: 1,2-Dichloroethane	90.1	52-149		%	4/11/05	4/11/05
EPA 8260B-	Surrogate recovery: 4-Bromofluorobenz	105	65-135		%	4/11/05	4/11/05
EPA 8260B-	Surrogate recovery: Toluene-d8	107	65-135		%	4/11/05	4/11/05

Run #: 0410N15  
Instrument: Neo  
Sequence: N050407  
Dilution Factor: 50  
Initials: LF

Printed: 4/12/05 11:45:19 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990-0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-344

Sample Collection Date: 4/8/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47069

APPL ID: AX17096

QCG: S86TTS-050408AC-85522

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 15.4 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	0.96	ug/Kg	4/9/05	4/9/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.5	ug/Kg	4/9/05	4/9/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.57	ug/Kg	4/9/05	4/9/05
EPA 8260B	1,1-Dichloroethane	4.4 J	6	1.3	ug/Kg	4/9/05	4/9/05
EPA 8260B	1,1-Dichloroethene	16	6	0.93	ug/Kg	4/9/05	4/9/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.85	ug/Kg	4/9/05	4/9/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.73	ug/Kg	4/9/05	4/9/05
EPA 8260B	2-Butanone	Not detected	59	0.84	ug/Kg	4/9/05	4/9/05
EPA 8260B	2-Hexanone	Not detected	59	0.19	ug/Kg	4/9/05	4/9/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	59	1.1	ug/Kg	4/9/05	4/9/05
EPA 8260B	Acetone	4.5 B J	120	3.3	ug/Kg	4/9/05	4/9/05
EPA 8260B	Benzene	Not detected	6	0.74	ug/Kg	4/9/05	4/9/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.82	ug/Kg	4/9/05	4/9/05
EPA 8260B	Bromoform	Not detected	6	0.95	ug/Kg	4/9/05	4/9/05
EPA 8260B	Bromomethane	Not detected	12	1.9	ug/Kg	4/9/05	4/9/05
EPA 8260B	Carbon disulfide	Not detected	6	1.3	ug/Kg	4/9/05	4/9/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.95	ug/Kg	4/9/05	4/9/05
EPA 8260B	Chlorobenzene	Not detected	6	0.58	ug/Kg	4/9/05	4/9/05
EPA 8260B	Chloroethane	Not detected	6	1.8	ug/Kg	4/9/05	4/9/05
EPA 8260B	Chloroform	Not detected	6	1.7	ug/Kg	4/9/05	4/9/05
EPA 8260B	Chloromethane	Not detected	6	2.1	ug/Kg	4/9/05	4/9/05
EPA 8260B	cis-1,2-Dichloroethene	73	6	1.3	ug/Kg	4/9/05	4/9/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.56	ug/Kg	4/9/05	4/9/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.0	ug/Kg	4/9/05	4/9/05
EPA 8260B	Ethylbenzene	Not detected	6	0.76	ug/Kg	4/9/05	4/9/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.0	ug/Kg	4/9/05	4/9/05
EPA 8260B	Methylene chloride	Not detected	59	5.4	ug/Kg	4/9/05	4/9/05
EPA 8260B	Styrene	Not detected	6	0.82	ug/Kg	4/9/05	4/9/05
EPA 8260B	Tetrachloroethane	1.9 J	6	0.64	ug/Kg	4/9/05	4/9/05
EPA 8260B	Toluene	Not detected	6	0.77	ug/Kg	4/9/05	4/9/05
EPA 8260B	trans-1,2-Dichloroethane	Not detected	6	1.6	ug/Kg	4/9/05	4/9/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0408C15  
Instrument: Chico  
Sequence: C050407B  
Dilution Factor: 1  
Initials: LF

Printed 4/11/05 12:22:30 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Blenkowski

Project: 1990-0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-344

Sample Collection Date: 4/8/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47069

APPL ID: AX17096

QCG: \$86TTS-050408AC-85522

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.51	ug/Kg	4/9/05	4/9/05
EPA 8260B	Trichloroethene	760 E	6	0.84	ug/Kg	4/9/05	4/9/05
EPA 8260B	Vinyl Acetate	Not detected	59	1.2	ug/Kg	4/9/05	4/9/05
EPA 8260B	Vinyl chloride	Not detected	6	2.0	ug/Kg	4/9/05	4/9/05
EPA 8260B	Xylenes	Not detected	18	0.80	ug/Kg	4/9/05	4/9/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	106	52-149		%	4/9/05	4/9/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	99.8	65-135		%	4/9/05	4/9/05
EPA 8260B	Surrogate recovery: Toluene-d8	93.1	65-135		%	4/9/05	4/9/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0408C15  
Instrument: Chico  
Sequence: C050407B  
Dilution Factor: 1  
Initials: LF

Printed: 4/11/05 12:22:30 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990-0860 WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-344**

Sample Collection Date: 4/8/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47069

**APPL ID: AX17096**

QCG: S86TTD-050410AN-85563

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 15.4 Percent Moisture.)							
EPA 8260B-	Trichloroethene	740	30	9.5	ug/Kg	4/11/05	4/11/05
EPA 8260B-	Surrogate recovery: 1,2-Dichloroethane	103	52-149		%	4/11/05	4/11/05
EPA 8260B-	Surrogate recovery: 4-Bromofluorobenz	122	65-135		%	4/11/05	4/11/05
EPA 8260B-	Surrogate recovery: Toluene-d8	120	65-135		%	4/11/05	4/11/05

Run #: 0410N16  
Instrument: Neo  
Sequence: N050407  
Dilution Factor: 50  
Initials: LF

Printed: 4/12/05 11:45 19 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990-0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-345

Sample Collection Date: 4/8/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47069

APPL ID: AX17097

QCG: S86TTS-050408AC-85522

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 10.9 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	0.91	ug/Kg	4/9/05	4/9/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.4	ug/Kg	4/9/05	4/9/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.54	ug/Kg	4/9/05	4/9/05
EPA 8260B	1,1-Dichloroethane	Not detected	6	1.3	ug/Kg	4/9/05	4/9/05
EPA 8260B	1,1-Dichloroethene	2.3 J	6	0.89	ug/Kg	4/9/05	4/9/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.81	ug/Kg	4/9/05	4/9/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.70	ug/Kg	4/9/05	4/9/05
EPA 8260B	2-Butanone	Not detected	56	0.80	ug/Kg	4/9/05	4/9/05
EPA 8260B	2-Hexanone	Not detected	56	0.18	ug/Kg	4/9/05	4/9/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	56	1.0	ug/Kg	4/9/05	4/9/05
EPA 8260B	Acetone	5.2 B J	110	3.1	ug/Kg	4/9/05	4/9/05
EPA 8260B	Benzene	Not detected	6	0.71	ug/Kg	4/9/05	4/9/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.77	ug/Kg	4/9/05	4/9/05
EPA 8260B	Bromoform	Not detected	6	0.90	ug/Kg	4/9/05	4/9/05
EPA 8260B	Bromomethane	Not detected	11	1.8	ug/Kg	4/9/05	4/9/05
EPA 8260B	Carbon disulfide	Not detected	6	1.2	ug/Kg	4/9/05	4/9/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.90	ug/Kg	4/9/05	4/9/05
EPA 8260B	Chlorobenzene	Not detected	6	0.55	ug/Kg	4/9/05	4/9/05
EPA 8260B	Chloroethane	Not detected	6	1.7	ug/Kg	4/9/05	4/9/05
EPA 8260B	Chloroform	Not detected	6	1.6	ug/Kg	4/9/05	4/9/05
EPA 8260B	Chloromethane	Not detected	6	2.0	ug/Kg	4/9/05	4/9/05
EPA 8260B	cis-1,2-Dichloroethene	31	6	1.2	ug/Kg	4/9/05	4/9/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.53	ug/Kg	4/9/05	4/9/05
EPA 8260B	Dibromochloromethane	Not detected	6	0.95	ug/Kg	4/9/05	4/9/05
EPA 8260B	Ethylbenzene	Not detected	6	0.72	ug/Kg	4/9/05	4/9/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.0	ug/Kg	4/9/05	4/9/05
EPA 8260B	Methylene chloride	Not detected	56	5.1	ug/Kg	4/9/05	4/9/05
EPA 8260B	Styrene	Not detected	6	0.77	ug/Kg	4/9/05	4/9/05
EPA 8260B	Tetrachloroethene	Not detected	6	0.61	ug/Kg	4/9/05	4/9/05
EPA 8260B	Toluene	Not detected	6	0.73	ug/Kg	4/9/05	4/9/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.5	ug/Kg	4/9/05	4/9/05

J = Estimated value, below quantitation limit.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0408C16  
Instrument: Chco  
Sequence: C050407B  
Dilution Factor: 1  
Initials: LF

Printed: 4/11/05 12 22 30 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990-0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-345

Sample Collection Date: 4/8/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47069

APPL ID: AX17097

QCG: S86TTS-050408AC-85522

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.48	ug/Kg	4/9/05	4/9/05
EPA 8260B	Trichloroethene	230	6	0.80	ug/Kg	4/9/05	4/9/05
EPA 8260B	Vinyl Acetate	Not detected	56	1.1	ug/Kg	4/9/05	4/9/05
EPA 8260B	Vinyl chloride	Not detected	6	1.9	ug/Kg	4/9/05	4/9/05
EPA 8260B	Xylenes	Not detected	17	0.76	ug/Kg	4/9/05	4/9/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	114	52-149		%	4/9/05	4/9/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	105	65-135		%	4/9/05	4/9/05
EPA 8260B	Surrogate recovery: Toluene-d8	96.4	65-135		%	4/9/05	4/9/05

J = Estimated value, below quantitation limit.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0408C16  
Instrument: Chico  
Sequence: C050407B  
Dilution Factor: 1  
Initials: LF

Printed: 4/11/05 12:22:30 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990-0860 WATS Bldg 88 Moffett Airfield

ARF: 47069

Sample ID: 86-WOPT-346

APPL ID: AX17098

Sample Collection Date: 4/8/05

QCG: S86TTS-050408AC-85522

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 18.5 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	0.99	ug/Kg	4/9/05	4/9/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.5	ug/Kg	4/9/05	4/9/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.59	ug/Kg	4/9/05	4/9/05
EPA 8260B	1,1-Dichloroethane	2.6 J	6	1.4	ug/Kg	4/9/05	4/9/05
EPA 8260B	1,1-Dichloroethene	7.7	6	0.97	ug/Kg	4/9/05	4/9/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.88	ug/Kg	4/9/05	4/9/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.76	ug/Kg	4/9/05	4/9/05
EPA 8260B	2-Butanone	Not detected	61	0.87	ug/Kg	4/9/05	4/9/05
EPA 8260B	2-Hexanone	Not detected	61	0.20	ug/Kg	4/9/05	4/9/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	61	1.1	ug/Kg	4/9/05	4/9/05
EPA 8260B	Acetone	5.6 B J	120	3.4	ug/Kg	4/9/05	4/9/05
EPA 8260B	Benzene	Not detected	6	0.77	ug/Kg	4/9/05	4/9/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.85	ug/Kg	4/9/05	4/9/05
EPA 8260B	Bromoform	Not detected	6	0.98	ug/Kg	4/9/05	4/9/05
EPA 8260B	Bromomethane	Not detected	12	2.0	ug/Kg	4/9/05	4/9/05
EPA 8260B	Carbon disulfide	Not detected	6	1.3	ug/Kg	4/9/05	4/9/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.98	ug/Kg	4/9/05	4/9/05
EPA 8260B	Chlorobenzene	Not detected	6	0.60	ug/Kg	4/9/05	4/9/05
EPA 8260B	Chloroethane	Not detected	6	1.9	ug/Kg	4/9/05	4/9/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	4/9/05	4/9/05
EPA 8260B	Chloromethane	Not detected	6	2.2	ug/Kg	4/9/05	4/9/05
EPA 8260B	cis-1,2-Dichloroethene	46	6	1.3	ug/Kg	4/9/05	4/9/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.58	ug/Kg	4/9/05	4/9/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.0	ug/Kg	4/9/05	4/9/05
EPA 8260B	Ethylbenzene	Not detected	6	0.79	ug/Kg	4/9/05	4/9/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/9/05	4/9/05
EPA 8260B	Methylene chloride	Not detected	61	5.6	ug/Kg	4/9/05	4/9/05
EPA 8260B	Styrene	Not detected	6	0.85	ug/Kg	4/9/05	4/9/05
EPA 8260B	Tetrachloroethene	1.4 J	6	0.66	ug/Kg	4/9/05	4/9/05
EPA 8260B	Toluene	Not detected	6	0.80	ug/Kg	4/9/05	4/9/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.7	ug/Kg	4/9/05	4/9/05

J = Estimated value, below quantitation limit

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0408C17

Instrument: Chico

Sequence: C050407B

Dilution Factor: 1

Initials: LF

Printed: 4/11/05 12:22:30 PM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

## EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990-0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-346

Sample Collection Date: 4/8/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47069

APPL ID: AX17098

QCG: S86TTS-050408AC-85522

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.53	ug/Kg	4/9/05	4/9/05
EPA 8260B	Trichloroethene	570 E	6	0.87	ug/Kg	4/9/05	4/9/05
EPA 8260B	Vinyl Acetate	Not detected	61	1.2	ug/Kg	4/9/05	4/9/05
EPA 8260B	Vinyl chloride	Not detected	6	2.1	ug/Kg	4/9/05	4/9/05
EPA 8260B	Xylenes	Not detected	18	0.83	ug/Kg	4/9/05	4/9/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	109	52-149		%	4/9/05	4/9/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	105	65-135		%	4/9/05	4/9/05
EPA 8260B	Surrogate recovery: Toluene-d8	95.9	65-135		%	4/9/05	4/9/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0408C17  
Instrument: Chico  
Sequence: C050407B  
Dilution Factor: 1  
Initials: LF

Printed: 4/11/05 12:22:30 PM  
APPL-F1-SC-MCRes\MCPQL-REG MDLs

## EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990-0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-346

Sample Collection Date: 4/8/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47069

APPL ID: AX17098

QCG: \$86TTD-050410AN-85563

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 18.5 Percent Moisture.)							
EPA 8260B-	Trichloroethene	410	31	9.8	ug/Kg	4/11/05	4/11/05
EPA 8260B-	Surrogate recovery: 1,2-Dichloroethane	95.4	52-149		%	4/11/05	4/11/05
EPA 8260B-	Surrogate recovery: 4-Bromofluorobenz	112	65-135		%	4/11/05	4/11/05
EPA 8260B-	Surrogate recovery: Toluene-d8	111	65-135		%	4/11/05	4/11/05

Run #: 0410N18  
Instrument: Neo  
Sequence: N050407  
Dilution Factor: 50  
Initials: LF

Printed: 4/12/05 11:45:19 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990-0860 WATS Bldg 88 Moffett Airfield

ARF: 47069

Sample ID: 86-WOPT-347

APPL ID: AX17099

Sample Collection Date: 4/8/05

QCG: S86TTS-050408BC-85525

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 19.8 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	1.0	ug/Kg	4/9/05	4/9/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.6	ug/Kg	4/9/05	4/9/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.60	ug/Kg	4/9/05	4/9/05
EPA 8260B	1,1-Dichloroethane	Not detected	6	1.4	ug/Kg	4/9/05	4/9/05
EPA 8260B	1,1-Dichloroethene	3.3 J	6	0.99	ug/Kg	4/9/05	4/9/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.90	ug/Kg	4/9/05	4/9/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.77	ug/Kg	4/9/05	4/9/05
EPA 8260B	2-Butanone	Not detected	62	0.89	ug/Kg	4/9/05	4/9/05
EPA 8260B	2-Hexanone	Not detected	62	0.20	ug/Kg	4/9/05	4/9/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	62	1.2	ug/Kg	4/9/05	4/9/05
EPA 8260B	Acetone	5.2 B J	120	3.5	ug/Kg	4/9/05	4/9/05
EPA 8260B	Benzene	Not detected	6	0.79	ug/Kg	4/9/05	4/9/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.86	ug/Kg	4/9/05	4/9/05
EPA 8260B	Bromoform	Not detected	6	1.0	ug/Kg	4/9/05	4/9/05
EPA 8260B	Bromomethane	Not detected	12	2.0	ug/Kg	4/9/05	4/9/05
EPA 8260B	Carbon disulfide	Not detected	6	1.4	ug/Kg	4/9/05	4/9/05
EPA 8260B	Carbon tetrachloride	Not detected	6	1.0	ug/Kg	4/9/05	4/9/05
EPA 8260B	Chlorobenzene	Not detected	6	0.61	ug/Kg	4/9/05	4/9/05
EPA 8260B	Chloroethane	Not detected	6	1.9	ug/Kg	4/9/05	4/9/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	4/9/05	4/9/05
EPA 8260B	Chloromethane	Not detected	6	2.3	ug/Kg	4/9/05	4/9/05
EPA 8260B	cis-1,2-Dichloroethene	5.9 J	6	1.3	ug/Kg	4/9/05	4/9/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.59	ug/Kg	4/9/05	4/9/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.1	ug/Kg	4/9/05	4/9/05
EPA 8260B	Ethylbenzene	Not detected	6	0.80	ug/Kg	4/9/05	4/9/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/9/05	4/9/05
EPA 8260B	Methylene chloride	Not detected	62	5.7	ug/Kg	4/9/05	4/9/05
EPA 8260B	Styrene	Not detected	6	0.86	ug/Kg	4/9/05	4/9/05
EPA 8260B	Tetrachloroethene	Not detected	6	0.67	ug/Kg	4/9/05	4/9/05
EPA 8260B	Toluene	Not detected	6	0.81	ug/Kg	4/9/05	4/9/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.7	ug/Kg	4/9/05	4/9/05

J = Estimated value, below quantitation limit.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0408C25  
Instrument: Chico  
Sequence: C050407B  
Dilution Factor: 1  
Initials: LF

Printed: 4/11/05 12:22:30 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 2C0  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990-0860 WATS Bldg 88 Moffett Airfield

ARF: 47069

Sample ID: 86-WOPT-347

APPL ID: AX17099

Sample Collection Date: 4/8/05

QCG: S86TTS-050408BC-85525

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.54	ug/Kg	4/9/05	4/9/05
EPA 8260B	Trichloroethene	230	6	0.89	ug/Kg	4/9/05	4/9/05
EPA 8260B	Vinyl Acetate	Not detected	62	1.2	ug/Kg	4/9/05	4/9/05
EPA 8260B	Vinyl chloride	Not detected	6	2.1	ug/Kg	4/9/05	4/9/05
EPA 8260B	Xylenes	Not detected	19	0.85	ug/Kg	4/9/05	4/9/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	103	52-149		%	4/9/05	4/9/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	100	65-135		%	4/9/05	4/9/05
EPA 8260B	Surrogate recovery: Toluene-d8	93.6	65-135		%	4/9/05	4/9/05

J = Estimated value, below quantitation limit.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0408C25  
Instrument: Chico  
Sequence: C050407B  
Dilution Factor: 1  
Initials: LF

Printed: 4/11/05 12:22:30 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



April 22, 2005

Service Request No: K2502642

Robert Wise  
APPL, Inc.  
4203 W. Swift Avenue  
Fresno, CA 93722

**RE: 47069**

Dear Robert:

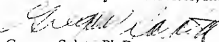
Enclosed are the results of the sample(s) submitted to our laboratory on April 12, 2005. For your reference, these analyses have been assigned our service request number K2502642.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAC standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3376.

Respectfully submitted,

**Columbia Analytical Services, Inc.**

  
Gregory Salata, Ph.D.  
Project Chemist

GS/jeb

Page 1 of 15

12508C

COLUMBIA ANALYTICAL SERVICES, INC.

Client: Agriculture & Priority Pollutants Labs, Inc.  
Project: 47069  
Sample Matrix: Soil

Service Request No.: K2502642  
Date Received: 04/12/05

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier III validation deliverables including summary forms and all of the associated raw data for each of the analyses. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Thirteen soil samples were received for analysis at Columbia Analytical Services on 04/12/05. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

General Chemistry Parameters

No anomalies associated with the analysis of these samples were observed.

Approved by

Date

00005

# COLUMBIA ANALYTICAL SERVICES, INC.

## Analytical Report

Client : Agriculture & Priority Pollutants Labs  
 Project Name : NA  
 Project Number : 47069  
 Sample Matrix : SOIL

Service Request : K2502642  
 Date Collected : 04/08/05  
 Date Received : 04/12/05

## Carbon, Total Organic

Analysis Method : Walkley-Black  
 Test Notes :

Units : mg Kg (ppm)  
 Basis : Dry

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
86-WOPT-332	K2502642-001	2600	1170	1	04/14/05	ND	
86-WOPT-333	K2502642-002	2600	1170	1	04/14/05	2790	
86-WOPT-334	K2502642-003	2600	1170	1	04/14/05	1270	J
86-WOPT-335	K2502642-004	2600	1170	1	04/14/05	ND	
86-WOPT-336	K2502642-005	2600	1170	1	04/14/05	ND	
86-WOPT-337	K2502642-006	2600	1170	1	04/14/05	1650	J
86-WOPT-341	K2502642-007	2600	1170	1	04/14/05	ND	
86-WOPT-342	K2502642-008	2600	1170	1	04/14/05	ND	
86-WOPT-343	K2502642-009	2600	1170	1	04/14/05	1270	J
86-WOPT-344	K2502642-010	2600	1170	1	04/14/05	ND	
86-WOPT-345	K2502642-011	2600	1170	1	04/14/05	1220	J
86-WOPT-346	K2502642-012	2600	1170	1	04/14/05	1420	J
86-WOPT-347	K2502642-013	2600	1170	1	04/14/05	1990	J
Method Blank	K2502642-MB	2600	1170	1	04/14/05	ND	



**Laboratory Data Consultants, Inc.**  
**Data Validation Report**

**Project/Site Name:** Moffett Air Field, Building 88, CTO 86  
**Collection Date:** April 8, 2005  
**LDC Report Date:** May 24, 2005  
**Matrix:** Soil  
**Parameters:** Total Organic Carbon  
**Validation Level:** EPA Level III & IV  
**Laboratory:** APPL, Inc./Columbia Analytical Services, Inc.  
**Sample Delivery Group (SDG):** 47069/K2502642

**Sample Identification**

86-WOPT-332  
86-WOPT-333  
86-WOPT-334  
86-WOPT-335\*\*  
86-WOPT-336  
86-WOPT-337  
86-WOPT-341  
86-WOPT-342  
86-WOPT-343\*\*  
86-WOPT-344  
86-WOPT-345  
86-WOPT-346  
86-WOPT-347  
86-WOPT-342DUP

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 14 soil samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per Walkley-Black Method for Total Organic Carbon (TOC).

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the method stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks results are summarized in Section III.

Field duplicates are summarized in Section IX.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Calibration**

### **a. Initial Calibration**

All criteria for the initial calibration were met.

### **b. Calibration Verification**

A continuing calibration verification (CCV) analysis was performed. The criteria for analysis were met.

## **III. Blanks**

Method blanks were reviewed for each matrix as applicable. No total organic carbon contaminants were found in the method blanks.

## **IV. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) analyses specified for the samples in this SDG, and therefore matrix spike analyses were not performed for this SDG.

## **V. Duplicates**

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Relative percent differences (RPD) were within QC limits.

## **VI. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **VII. Sample Result Verification**

All sample result verifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **VIII. Overall Assessment of Data**

Data flags have been summarized at the end of this report.

## **IX. Field Duplicates**

No field duplicates were identified in this SDG.

## **X. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Air Field, Building 88, CTO 86**

**Total Organic Carbon - Data Qualification Summary - SDG 47069/K2502642**

No Sample Data Qualified in this SDG

**Moffett Air Field, Building 88, CTO 86**

**Total Organic Carbon - Laboratory Blank Data Qualification Summary - SDG 47069/K2502642**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.**  
**Data Validation Report**

**Project/Site Name:** Moffett Air Field, Building 88, CTO 86  
**Collection Date:** April 8, 2005  
**LDC Report Date:** May 26, 2005  
**Matrix:** Soil/Water  
**Parameters:** Volatiles  
**Validation Level:** EPA Level III & IV  
**Laboratory:** APPL, Inc.

**Sample Delivery Group (SDG):** 47069

**Sample Identification**

86-WOPT-331  
86-WOPT-332  
86-WOPT-333  
86-WOPT-333DL  
86-WOPT-334  
86-WOPT-335\*\*  
86-WOPT-336  
86-WOPT-337  
86-WOPT-341  
86-WOPT-342  
86-WOPT-343\*\*  
86-WOPT-343DL\*\*  
86-WOPT-344  
86-WOPT-344DL  
86-WOPT-345  
86-WOPT-346  
86-WOPT-346DL  
86-WOPT-347  
86-WOPT-342MS  
86-WOPT-342MSD

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 19 soil samples and one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 15.0% for each individual compound and less than or equal to 30.0% for calibration check compounds (CCCs) with the following exceptions:

Data	Compound	%RSD	Associated Samples	Flag	A or P
4/7/05	Bromomethane	26	86-WOPT-332 86-WOPT-333 86-WOPT-334 86-WOPT-335** 86-WOPT-336 86-WOPT-337 86-WOPT-341 86-WOPT-342 86-WOPT-343** 86-WOPT-344 86-WOPT-345 86-WOPT-346 86-WOPT-347 86-WOPT-342MS 86-WOPT-342MSD 050408S 050409S	J (all detects) UJ (all non-detects)	A

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination ( $r^2$ ) was greater than or equal to 0.990 .

Average relative response factors (RRF) for all system performance check compounds (SPCCs) were within method and validation criteria.

## IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.



Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 20.0% for all compounds.

All of the continuing calibration RRF values for all system performance check compounds (SPCCs) were within method and validation criteria.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Analysis Date	Compound TIC (RT in minutes)	Concentration	Associated Samples
050408S	4/8/05	Acetone	6.7 ug/Kg	86-WOPT-332 86-WOPT-333 86-WOPT-334 86-WOPT-335** 86-WOPT-336 86-WOPT-337 86-WOPT-341 86-WOPT-343** 86-WOPT-344 86-WOPT-345 86-WOPT-346
050409S	4/9/05	Acetone	4.6 ug/Kg	86-WOPT-342 86-WOPT-347

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
86-WOPT-332	Acetone	7.3 ug/Kg	120U ug/Kg
86-WOPT-333	Acetone	7.9 ug/Kg	130U ug/Kg
86-WOPT-334	Acetone	5.6 ug/Kg	130U ug/Kg
86-WOPT-335**	Acetone	6.0 ug/Kg	120U ug/Kg
86-WOPT-336	Acetone	7.5 ug/Kg	120U ug/Kg
86-WOPT-337	Acetone	8.1 ug/Kg	120U ug/Kg

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
86-WOPT-341	Acetone	5.8 ug/Kg	130U ug/Kg
86-WOPT-343**	Acetone	7.3 ug/Kg	130U ug/Kg
86-WOPT-344	Acetone	4.5 ug/Kg	120U ug/Kg
86-WOPT-345	Acetone	5.2 ug/Kg	110U ug/Kg
86-WOPT-346	Acetone	5.6 ug/Kg	120U ug/Kg
86-WOPT-342	Acetone	8.1 ug/Kg	130U ug/Kg
86-WOPT-347	Acetone	5.2 ug/Kg	120U ug/Kg

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were not within QC limits. Since the sample concentration was greater than the spiked concentration, no data were qualified.

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## IX. Regional Quality Assurance and Quality Control

Not applicable.

## X. Internal Standards

All internal standard areas and retention times were within QC limits.

## XI. Target Compound Identifications

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
86-WOPT-333	cis-1,2-Dichloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	A
86-WOPT-335** 86-WOPT-345 86-WOPT-347 86-WOPT-332	Trichloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects)	P
86-WOPT-342	cis-1,2-Dichloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects)	P
86-WOPT-343** 86-WOPT-344 86-WOPT-346	Trichloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	A

Raw data were not evaluated for the samples reviewed by Level III criteria.

## XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

## XIV. System Performance

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## XV. Overall Assessment

Data flags are summarized at the end of this report if data has been qualified.

## XVI. Field Duplicates

No field duplicates were identified in this SDG.

## **XVII. Field Blanks**

Sample 86-WOPT-331 was identified as a trip blank. No volatile contaminants were found in this blank.

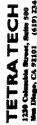
**Moffett Air Field, Building 88, CTO 86**  
**Volatiles - Data Qualification Summary - SDG 47069**

SDG	Sample	Compound	Flag	A or P	Reason
47069	86-WOPT-332 86-WOPT-333 86-WOPT-334 86-WOPT-335** 86-WOPT-336 86-WOPT-337 86-WOPT-341 86-WOPT-342 86-WOPT-343** 86-WOPT-344 86-WOPT-345 86-WOPT-346 86-WOPT-347	Bromomethane	J (all detects) UJ (all non-detects)	A	Initial calibration (%RSD)
47069	86-WOPT-333	cis-1,2-Dichloroethene	J (all detects)	A	Compound quantitation and CROLS
47069	86-WOPT-335** 86-WOPT-345 86-WOPT-347 86-WOPT-332	Trichloroethene	J (all detects) J (all detects)	P	Compound quantitation and CROLS
47069	86-WOPT-342	cis-1,2-Dichloroethene	J (all detects) J (all detects)	P	Compound quantitation and CROLS
47069	86-WOPT-343** 86-WOPT-344 86-WOPT-346	Trichloroethene	J (all detects)	A	Compound quantitation and CROLS

**Moffett Air Field, Building 88, CTO 86**  
**Volatiles - Laboratory Blank Data Qualification Summary - SDG 47069**

SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P
47089	86-WOPT-332	Acetone	120U ug/Kg	A
47089	86-WOPT-333	Acetone	130U ug/Kg	A
47089	86-WOPT-334	Acetone	130U ug/Kg	A
47089	86-WOPT-335**	Acetone	120U ug/Kg	A
47089	86-WOPT-336	Acetone	120U ug/Kg	A

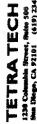
SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P
47089	86-WOPT-337	Acetone	120U ug/Kg	A
47089	86-WOPT-341	Acetone	130U ug/Kg	A
47089	86-WOPT-343**	Acetone	130U ug/Kg	A
47089	86-WOPT-344	Acetone	120U ug/Kg	A
47089	86-WOPT-345	Acetone	110U ug/Kg	A
47089	86-WOPT-346	Acetone	120U ug/Kg	A
47089	86-WOPT-342	Acetone	130U ug/Kg	A
47089	86-WOPT-347	Acetone	120U ug/Kg	A



**NUMBER**  
**10356**

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management

0047049-12



**NUMBER**  
**10352**

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management

0040749-12





TETRA TECH

1234 Columbia Street, Suite 100  
San Diego, CA 92101 (619) 234-8696

CHAIN-OF-CUSTODY RECORD

NUMBER 10357

PROJECT NAME		PURCHASE ORDER NO.		PROJECT NO.		ANALYSES REQUIRED		LABORATORY NAME		Project Information Section	
PROJECT LOCATION		PROJECT NO.		PROJECT NO.		ANALYSES REQUIRED		LABORATORY NAME		Do not submit to Laboratory	
SAMPLE NAME		PROJECT CONTACT		PROJECT CONTACT PHONE NUMBER		ANALYSES REQUIRED		LABORATORY ID (FOR LABORATORY)			
DATE COLLECTED		TIME COLLECTED		NO OF CONTAINERS		ANALYSES REQUIRED		COMMENTS		LOCATION	
SAMPLE ID		DATE COLLECTED		TIME COLLECTED		NO OF CONTAINERS		COMMENTS		DEPTH START END	
DATE COLLECTED		TIME COLLECTED		NO OF CONTAINERS		NO OF CONTAINERS		COMMENTS		QC	
86-WORT-510	4/12/05	1245	5	5	5	5	5	5	5	5	5
86-WORT-511	4/12/05	1300	5	5	5	5	5	5	5	5	5
86-WORT-512	4/12/05	1320	5	5	5	5	5	5	5	5	5
86-WORT-513	4/12/05	1350	5	5	5	5	5	5	5	5	5
86-WORT-514	4/12/05	1400	4	4	4	4	4	4	4	4	4
LABORATORY INSTRUCTIONS/COMMENTS											
COMPOSITE DESCRIPTION											
SAMPLE COMMENTS (FOR LABORATORY)											
TEMPERATURE: <input type="checkbox"/> SAMPLE LOCATION: <input type="checkbox"/> CONTACT: <input type="checkbox"/> BROKEN: <input type="checkbox"/>											
COOLING: <input type="checkbox"/> CONTACT: <input type="checkbox"/> BROKEN: <input type="checkbox"/>											
LABORATORY COMMENTS											

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management

0047060-12



TETRA TECH

1230 Colchester Street, Suite 100  
San Diego, CA 92101 (619) 234-8884

## CHAIN-OF-CUSTODY RECORD

NUMBER 10354

PROJECT NAME		PURCHASE ORDER NO		PROJECT NO		PROJECT CONTACT		PROJECT CONTACT PHONE NUMBER		ANALYSES REQUIRED		LABORATORY NAME		Project Information Section Do not submit to Laboratory	
BUILDING 88		55432		1940-86D		COURTIER		(916) 756-7558		VOC. # 82602 TOC - Contingency Risk		APPL			
PROJECT LOCATION		Moffett Field, CA		SAMPLER NAME		NORTH CUTTER		LABORATORY ID (FOR LABORATORY)		COMMENTS		LOCATION		DEPTH	
DATE COLLECTED		TIME COLLECTED		NO OF CONTAINER		LEVEL		T				START		END	
TIME		TIME		TIME		TIME		TIME				TIME		TIME	
86-WOPT-1008	4/12/05	1224	5	5	24	X							CPT-88-1	2.5	3.5
86-WOPT-1009	4/12/05	1235	5	5	24	X							CPT-88-1	18.5	19.5
86-WOPT-1010	4/12/05	1245	4	4	24	X							CPT-88-1	24.5	25.5
86-WOPT-1011	4/12/05	1251	5	5	24	X							CPT-88-1	20.5	21.5
86-WOPT-1012	4/12/05	1258	5	5	24	X							CPT-88-1	30.5	31.5
86-WOPT-1013	4/12/05	1310	4	4	24	X							CPT-88-1	40.5	41.5
86-WOPT-1014	4/12/05	1327	4	4	24	X							CPT-88-1	53	54
86-WOPT-1015	4/12/05	1344	4	4	24	X							CPT-88-1	53	54
LABORATORY INSTRUCTIONS/COMMENTS															
COMPOSITE DESCRIPTION															
SAMPLE CONDITION UPON RECEIPT FOR LABORATORY															
TEMPERATURE: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN															
COLOR SEAL: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN															
SAMPLING COMMENT:															
Building 88															
CAT															
Contingency Risk															

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management

Data Validation Package  
for  
Moffett Air Field, WATS Building 88, CTO 86  
ARF 47099

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## Case Narrative

ARF: 47099

Project: 1990.086D WATS Building 88 Moffett Airfield

State Certification Number: CA1312

Results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

### Sample Receipt Information:

The sample group was received April 12, 2005, at 4.0°C and 4.5°C. The samples were assigned Analytical Request Form (ARF) number 47099. The sample numbers and requested analyses were compared to the chains of custody. The client requested that metals analysis be performed on the unpreserved volume received for sample 86-WOPT-504. In accordance with an email from Lisa Bienkowski, sampling date was added to COC #10356, an MS/MSD was added to sample 86-WOPT-1006 and the PO was added to the COCs. No other exception was noted.

Sample Table

CLIENT ID	APPL ID	Matrix	Date Sampled	Date Received
86-WOPT-500	AX17315	WATER	4/12/05	4/12/05
86-WOPT-501	AX17316	WATER	4/12/05	4/12/05
86-WOPT-502	AX17317	WATER	4/12/05	4/12/05
86-WOPT-503	AX17318	WATER	4/12/05	4/12/05
86-WOPT-504	AX17319	WATER	4/12/05	4/12/05
86-WOPT-505	AX17320	WATER	4/12/05	4/12/05
86-WOPT-506	AX17321	WATER	4/12/05	4/12/05
86-WOPT-507	AX17322	SOIL	4/12/05	4/12/05
86-WOPT-508	AX17323	SOIL	4/12/05	4/12/05
86-WOPT-509	AX17324	SOIL	4/12/05	4/12/05
86-WOPT-510	AX17325	SOIL	4/12/05	4/12/05
86-WOPT-511	AX17326	SOIL	4/12/05	4/12/05
86-WOPT-512	AX17327	SOIL	4/12/05	4/12/05
86-WOPT-513	AX17328	SOIL	4/12/05	4/12/05
86-WOPT-514	AX17329	WATER	4/12/05	4/12/05
86-WOPT-1000	AX17330	WATER	4/12/05	4/12/05
86-WOPT-1001	AX17331	WATER	4/12/05	4/12/05
86-WOPT-1002	AX17332	WATER	4/12/05	4/12/05
86-WOPT-1003	AX17333	WATER	4/12/05	4/12/05
86-WOPT-1004	AX17334	WATER	4/12/05	4/12/05
86-WOPT-1005	AX17335	WATER	4/12/05	4/12/05
86-WOPT-1006	AX17336	WATER	4/12/05	4/12/05

86-WOPT-1007	AX17337	WATER	4/12/05	4/12/05
86-WOPT-1008	AX17338	SOIL	4/12/05	4/12/05
86-WOPT-1009	AX17339	SOIL	4/12/05	4/12/05
86-WOPT-1010	AX17340	SOIL	4/12/05	4/12/05
86-WOPT-1011	AX17341	SOIL	4/12/05	4/12/05
86-WOPT-1012	AX17342	SOIL	4/12/05	4/12/05
86-WOPT-1013	AX17343	SOIL	4/12/05	4/12/05
86-WOPT-1014	AX17344	SOIL	4/12/05	4/12/05
86-WOPT-1015	AX17345	WATER	4/12/05	4/12/05

Percent moisture was determined according to CLP 4.0.

## **EPA Method 8260B**

### **Volatile Organic Analysis**

#### **Sample Preparation:**

The EPA 8260B water samples were purged according to EPA method 5030B. The EPA 8260B soil samples were purged according to EPA method 5035. The CLP water samples were purged according to the method. All holding times were met.

#### **Sample Analysis Information:**

The samples were analyzed according to the methods using a Hewlett Packard Gas Chromatograph with a mass spectrometer detector.

#### **Quality Control/Assurance**

##### **Calibrations:**

Initial and continuing calibrations were performed according to the methods. In order to meet the requested CLP reporting limits, the initial calibration points were changed from 10, 20, 50, 100, and 200 µg/L to 0.5, 1, 2, 5, 10, 20, 40, and 100 µg/L. For the continuing calibration performed on Chico file ID: 0413C02W.D, Bromomethane had a 21%D, Acetone had a 30%D, Carbon disulfide had a 22%D, 2-Butanone had a 26%D, 2-Hexanone had a 34%D, and 4-Methyl-2-pentanone had a 30%D. For the continuing calibration performed on Neo file ID: 0413N01W.D, Bromomethane had a 26%D and Chloroethane had a 26%D. For the continuing calibration performed on Sweetpea file ID: 0413S01W.D, 1,2-DCA had a 22%D. All other calibration criteria were met.

##### **Blanks:**

For the 050413AN method blank, cis-1,2-Dichloroethene and Trichloroethene were detected above the MDL but below the reporting limit at 0.29 µg/L and 0.22 µg/L respectively. For the 050415AN method blank, Trichloroethene was detected above the MDL but below the reporting limit at 0.21 µg/L. No target analyte was detected above the reporting limits in the method blanks.

##### **Spikes:**

Laboratory Control Spikes (LCS/LCSD) were used for quality assurance. A second-source standard was used for the LCSs. All spike and second-source criteria were met. For the MS/MSD performed on sample 86-WOPT-1006, 1,1-Dichloroethene was recovered at 54.0% and 51.0% and Trichloroethene was recovered at -1400% and -2900%. The concentration of Trichloroethene in the parent sample was greater than 100 times the spiking concentration.

##### **Surrogates**

All surrogate recoveries were within control limits.

##### **Tuning:**

The instrument was tuned using BFB. All method criteria were met.

### **Internal Standards**

The internal standard area counts were compared to the mid-point of the initial calibration according to method 8260 and compared to the closest continuing calibration for the CLP analyses. Sample S6-WOPT-100S recovered the 1,4-Dichlorobenzene-d4 internal standard below the lower control limit. Only 1,1,2,2-Tetrachloroethane and 4-Methyl-2-pentanone are quantitated using this internal standard. The sample was not re-analyzed undiluted since the sample required a dilution. Tetrachloroethene, Trichloroethene, 1,1,2,2-Tetrachloroethane and 4-Methyl-2-pentanone are reported from the diluted analysis. All other method criteria were met.

### **Summary:**

No additional problem was encountered. All data were acceptable.

## **EPA Methods 6010B**

### **Metals**

#### **Digestion Information:**

The waters were digested according to EPA methods 3010A. In accordance with an email from Lisa Bienkowski, the digestion was performed on the unpreserved volume received for sample 86-WOPT-504. The volume was preserved in the laboratory. No other exceptions were encountered. All holding times were met.

#### **Analysis Information:**

##### **Samples:**

The samples were analyzed for metals according to EPA method 6010B using a Perkin Elmer Optima 4300DV. Various dilutions were required; diluted and undiluted results are reported for each metal.

##### **Calibrations:**

Calibrations were performed according to the methods for the initial calibration and the initial calibration verification. The initial calibration verification is prepared from a second source standard.

##### **Blanks:**

Trace levels of Calcium and Sodium were detected in the blank. No target metal was detected above the reporting limits in the method blank.

##### **Spikes:**

Laboratory Control Spikes (LCS/LCSD) were used for quality assurance. Recoveries were within acceptance limits.

An MS/MSD were performed on sample 86-WOPT-1006. Calcium recovered below the 80% lower control limit at 44% and 48%. Iron recovered above the 120% upper control limit at 400% and 1710%. Magnesium recovered high in the MSD at 147%. All other acceptance criteria were met.

#### **Summary:**

No other analytical exception is noted. All data are acceptable.



# **EPA Methods 300.0, 310.1 and SW 846 9060A**

## **Anions, Carbonate, Bicarbonate and Total Organic Carbon**

### **Sample Preparation Information:**

The samples were prepared according to the methods. All holding times were met.

### **Analysis Information:**

#### **Samples:**

The samples were analyzed according to the methods. A Dionex DX500 ion chromatograph was used for the EPA 300.0 analysis. The TOC was analyzed using a Shimadzu TOC-5050A instrument.

#### **Calibrations:**

Calibrations were performed according to the methods for the initial calibration and the initial calibration verification. The initial calibration verification is prepared from a second source standard.

#### **Blanks:**

No target analyte was detected above the reporting limits in the method blanks.

#### **Spikes:**

Laboratory Control Spikes (LCS/LCSD) were used for quality assurance. Acceptance criteria were met.

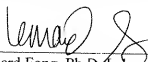
Sample 86-WOPT-1006 was designated by the client for MS/MSD analysis. Due to the high response in the parent sample, Sulfate recovered below the 80% lower control limit at 67%. All other recoveries were acceptable.

### **Summary:**

No other analytical exception was encountered. All data are acceptable.

## CERTIFICATION

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the hard copy has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

 5/12/15  
\_\_\_\_\_  
Leonard Fong, Ph.D. Laboratory Director / Date

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1340 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.096D WATS Bldg 88 Moffett Airfield

ARF: 47099

Sample ID: 86-WOPT-500

APPL ID: AX17315

Sample Collection Date: 4/12/05

QCG: \$C42VT-050412AN-85642

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	0.86	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/13/05	4/13/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	2.5	0.5	0.21	ug/L	4/13/05	4/13/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/13/05	4/13/05
CLP VOL	1,1-Dichloroethane	73	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	1,1-Dichloroethene	46	0.5	0.30	ug/L	4/13/05	4/13/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	1,2-Dichloropropane	1.2	0.5	0.17	ug/L	4/13/05	4/13/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/13/05	4/13/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/13/05	4/13/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/13/05	4/13/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/13/05	4/13/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/13/05	4/13/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/13/05	4/13/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/13/05	4/13/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/13/05	4/13/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/13/05	4/13/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/13/05	4/13/05
CLP VOL	cis-1,2-Dichloroethene	600 E	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/13/05	4/13/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/13/05	4/13/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/13/05	4/13/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/13/05	4/13/05

E = The reported value exceeds linear range.

Run #: 0412N20  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 10 27 57 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Blenkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-500

Sample Collection Date: 4/12/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47099

APPL ID: AX17315

QCG: SC42VT-050412AN-85642

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	3.9	0.5	0.15	ug/L	4/13/05	4/13/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/13/05	4/13/05
CLP VOL	trans-1,2-Dichloroethene	2.5	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/13/05	4/13/05
CLP VOL	Trichloroethene	170 E	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	Vinyl Chloride	1.3	0.5	0.23	ug/L	4/13/05	4/13/05
CLP VOL	Surrogate Recovery (BFB)	95.4	75-125		%	4/13/05	4/13/05
CLP VOL	Surrogate Recovery (DCA)	111	62-139		%	4/13/05	4/13/05
CLP VOL	Surrogate Recovery (TOL)	95.1	75-125		%	4/13/05	4/13/05

E = The reported value exceeds linear range.

Run #: 0412N20  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 10:27:57 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-500

Sample Collection Date: 4/12/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47099

APPL ID: AX17315

QCG: \$C42VT-050412AN-85642

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	520	25	8.00	ug/L	4/13/05	4/13/05
CLP VOL	Trichloroethene	220	25	8.00	ug/L	4/13/05	4/13/05
CLP VOL	Surrogate Recovery (BFB)	109	75-125		%	4/13/05	4/13/05
CLP VOL	Surrogate Recovery (DCA)	98.5	62-139		%	4/13/05	4/13/05
CLP VOL	Surrogate Recovery (TOL)	108	75-125		%	4/13/05	4/13/05

Run #: 0413N11  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 50  
Initials: LF

Printed: 4/20/05 10 27 57 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47099

**Sample ID: 86-WOPT-501**

**APPL ID: AX17316**

Sample Collection Date: 4/12/05

QCG: SC42VT-050412AN-85642

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/13/05	4/13/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	0.5	0.21	ug/L	4/13/05	4/13/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/13/05	4/13/05
CLP VOL	1,1-Dichloroethane	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	1,1-Dichloroethene	Not detected	0.5	0.30	ug/L	4/13/05	4/13/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/13/05	4/13/05
CLP VOL	2-Butenone	Not detected	5	0.6	ug/L	4/13/05	4/13/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/13/05	4/13/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/13/05	4/13/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/13/05	4/13/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/13/05	4/13/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/13/05	4/13/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/13/05	4/13/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/13/05	4/13/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/13/05	4/13/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/13/05	4/13/05
CLP VOL	cis-1,2-Dichloroethene	Not detected	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/13/05	4/13/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/13/05	4/13/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Methylene Chloride	0.51	0.5	0.35	ug/L	4/13/05	4/13/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/13/05	4/13/05

Run #: 0412N18  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 10 27 57 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-501

Sample Collection Date: 4/12/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47099

APPL ID: AX17316

QCG: SC42VT-050412AN-85642

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	Not detected	0.5	0.15	ug/L	4/13/05	4/13/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/13/05	4/13/05
CLP VOL	trans-1,2-Dichloroethene	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/13/05	4/13/05
CLP VOL	Trichloroethene	Not detected	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	Vinyl Chloride	Not detected	0.5	0.23	ug/L	4/13/05	4/13/05
CLP VOL	Surrogate Recovery (BFB)	103	75-125		%	4/13/05	4/13/05
CLP VOL	Surrogate Recovery (DCA)	108	62-139		%	4/13/05	4/13/05
CLP VOL	Surrogate Recovery (TOL)	102	75-125		%	4/13/05	4/13/05

Run #: 0412N18  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 10:27:57 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47099

Sample ID: 86-WOPT-502

APPL ID: AX17317

Sample Collection Date: 4/12/05

QCG: SC42VT-050412AN-85642

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/13/05	4/13/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	1.1	0.5	0.21	ug/L	4/13/05	4/13/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/13/05	4/13/05
CLP VOL	1,1-Dichloroethane	18	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	1,1-Dichloroethene	31	0.5	0.30	ug/L	4/13/05	4/13/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	1,2-Dichloropropane	0.51	0.5	0.17	ug/L	4/13/05	4/13/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/13/05	4/13/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/13/05	4/13/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/13/05	4/13/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/13/05	4/13/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/13/05	4/13/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/13/05	4/13/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/13/05	4/13/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/13/05	4/13/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/13/05	4/13/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/13/05	4/13/05
CLP VOL	cis-1,2-Dichloroethene	1500 E	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/13/05	4/13/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/13/05	4/13/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/13/05	4/13/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/13/05	4/13/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0412N21  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 04/20/05 10:27:57 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-502

Sample Collection Date: 4/12/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47099

APPL ID: AX17317

QCG: SC42VT-050412AN-85642

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	0.22 J	0.5	0.15	ug/L	4/13/05	4/13/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/13/05	4/13/05
CLP VOL	trans-1,2-Dichloroethene	9.1	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/13/05	4/13/05
CLP VOL	Trichloroethene	130 E	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	Vinyl Chloride	1.2	0.5	0.23	ug/L	4/13/05	4/13/05
CLP VOL	Surrogate Recovery (BFB)	94.2	75-125		%	4/13/05	4/13/05
CLP VOL	Surrogate Recovery (DCA)	108	62-139		%	4/13/05	4/13/05
CLP VOL	Surrogate Recovery (TOL)	98.9	75-125		%	4/13/05	4/13/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0412N21  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 10:27:57 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-502

Sample Collection Date: 4/12/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47099

APPL ID: AX17317

QC#: SC42VT-050412AN-85642

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	2000	25	8.00	ug/L	4/13/05	4/13/05
CLP VOL	Trichloroethene	130	25	8.00	ug/L	4/13/05	4/13/05
CLP VOL	Surrogate Recovery (BFB)	106	75-125		%	4/13/05	4/13/05
CLP VOL	Surrogate Recovery (DCA)	95.2	62-139		%	4/13/05	4/13/05
CLP VOL	Surrogate Recovery (TOL)	108	75-125		%	4/13/05	4/13/05

Run #: 0413N12  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 50  
Initials: LF

Printed: 4/20/05 10:27:57 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Blenkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-503

Sample Collection Date: 4/12/05

ARF: 47099

APPL ID: AX17318

QC: SC42VT-050412AN-85642

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/13/05	4/13/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	0.73	0.5	0.21	ug/L	4/13/05	4/13/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/13/05	4/13/05
CLP VOL	1,1-Dichloroethane	16	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	1,1-Dichloroethene	23	0.5	0.30	ug/L	4/13/05	4/13/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/13/05	4/13/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/13/05	4/13/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/13/05	4/13/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/13/05	4/13/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/13/05	4/13/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/13/05	4/13/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/13/05	4/13/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/13/05	4/13/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/13/05	4/13/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/13/05	4/13/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/13/05	4/13/05
CLP VOL	cis-1,2-Dichloroethene	1400 E	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/13/05	4/13/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/13/05	4/13/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/13/05	4/13/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/13/05	4/13/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range

Run #: 0412N22  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 10:27:57 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-503**

Sample Collection Date: 4/12/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47099

**APPL ID: AX17318**

QCQ: SC42VT-050412AN-85642

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	0.19 J	0.5	0.15	ug/L	4/13/05	4/13/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/13/05	4/13/05
CLP VOL	trans-1,2-Dichloroethene	6.9	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/13/05	4/13/05
CLP VOL	Trichloroethene	87	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	Vinyl Chloride	0.90	0.5	0.23	ug/L	4/13/05	4/13/05
CLP VOL	Surrogate Recovery (BFB)	102	75-125		%	4/13/05	4/13/05
CLP VOL	Surrogate Recovery (DCA)	107	62-139		%	4/13/05	4/13/05
CLP VOL	Surrogate Recovery (TOL)	101	75-125		%	4/13/05	4/13/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0412N22  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed 4/20/05 10:27:57 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-503

Sample Collection Date: 4/12/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47099

APPL ID: AX17318

QCG: SC42VD-050415AN-86199

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	2100	25	8.00	ug/L	4/15/05	4/15/05
CLP VOL	Surrogate Recovery (BFB)	94.4	75-125		%	4/15/05	4/15/05
CLP VOL	Surrogate Recovery (DCA)	95.7	62-139		%	4/15/05	4/15/05
CLP VOL	Surrogate Recovery (TOL)	96.4	75-125		%	4/15/05	4/15/05

Run #: 0415N09  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 50  
Initials: LF

Printed: 4/28/05 3:57:58 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47099

Sample ID: 86-WOPT-504

APPL ID: AX17319

Sample Collection Date: 4/12/05

QC: SC42VT-050412AN-85642

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	1.1	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/13/05	4/13/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	21	0.5	0.21	ug/L	4/13/05	4/13/05
CLP VOL	1,1,2-Trichloroethane	0.26 J	0.5	0.2	ug/L	4/13/05	4/13/05
CLP VOL	1,1-Dichloroethane	11	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	1,1-Dichloroethene	22	0.5	0.30	ug/L	4/13/05	4/13/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/13/05	4/13/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/13/05	4/13/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/13/05	4/13/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/13/05	4/13/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/13/05	4/13/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/13/05	4/13/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/13/05	4/13/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/13/05	4/13/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/13/05	4/13/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/13/05	4/13/05
CLP VOL	Chloroform	0.31 J	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/13/05	4/13/05
CLP VOL	cis-1,2-Dichloroethene	190 E	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/13/05	4/13/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/13/05	4/13/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/13/05	4/13/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/13/05	4/13/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0412N23  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed 4/20/05 10:27 57 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-504

Sample Collection Date: 4/12/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47099

APPL ID: AX17319

QCG: SC42VT-050412AN-85642

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	0.79	0.5	0.15	ug/L	4/13/05	4/13/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/13/05	4/13/05
CLP VOL	trans-1,2-Dichloroethene	0.81	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/13/05	4/13/05
CLP VOL	Trichloroethene	1300 E	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	Vinyl Chloride	Not detected	0.5	0.23	ug/L	4/13/05	4/13/05
CLP VOL	Surrogate Recovery (BFB)	100	75-125		%	4/13/05	4/13/05
CLP VOL	Surrogate Recovery (DCA)	114	62-139		%	4/13/05	4/13/05
CLP VOL	Surrogate Recovery (TOL)	98.1	75-125		%	4/13/05	4/13/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0412N23  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 10:27:57 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-504

Sample Collection Date: 4/12/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47099

APPL ID: AX17319

QCG: SC42VD-050415AN-86199

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	170	25	8.00	ug/L	4/15/05	4/15/05
CLP VOL	Trichloroethene	1400	25	8.00	ug/L	4/15/05	4/15/05
CLP VOL	Surrogate Recovery (BFB)	98.5	75-125		%	4/15/05	4/15/05
CLP VOL	Surrogate Recovery (DCA)	102	62-139		%	4/15/05	4/15/05
CLP VOL	Surrogate Recovery (TOL)	100	75-125		%	4/15/05	4/15/05

Run #: 0415N10  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 50  
Initials: LF

Printed 4/28/05 3:57:59 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-505

Sample Collection Date: 4/12/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47099

APPL ID: AX17320

QCG: \$C42VT-050412AN-85642

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	1.6	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/13/05	4/13/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	31	0.5	0.21	ug/L	4/13/05	4/13/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/13/05	4/13/05
CLP VOL	1,1-Dichloroethane	9.6	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	1,1-Dichloroethene	24	0.5	0.30	ug/L	4/13/05	4/13/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/13/05	4/13/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/13/05	4/13/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/13/05	4/13/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/13/05	4/13/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/13/05	4/13/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/13/05	4/13/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/13/05	4/13/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/13/05	4/13/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/13/05	4/13/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/13/05	4/13/05
CLP VOL	Chloroform	0.32 J	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/13/05	4/13/05
CLP VOL	cis-1,2-Dichloroethene	150 E	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/13/05	4/13/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/13/05	4/13/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/13/05	4/13/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/13/05	4/13/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0412N24  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 10:27:57 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-505

Sample Collection Date: 4/12/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47099

APPL ID: AX17320

QCG: SC42VT-050412AN-85642

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	1.1	0.5	0.15	ug/L	4/13/05	4/13/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/13/05	4/13/05
CLP VOL	trans-1,2-Dichloroethene	1.2	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/13/05	4/13/05
CLP VOL	Trichloroethene	1300 E	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	Vinyl Chloride	0.41 J	0.5	0.23	ug/L	4/13/05	4/13/05
CLP VOL	Surrogate Recovery (BFB)	100	75-125		%	4/13/05	4/13/05
CLP VOL	Surrogate Recovery (DCA)	103	62-139		%	4/13/05	4/13/05
CLP VOL	Surrogate Recovery (TOL)	102	75-125		%	4/13/05	4/13/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0412N24  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 10:27:57 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-506

Sample Collection Date: 4/12/05

ARF: 47099

APPL ID: AX17321

QCQ: SC42VT-050412AN-85642

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	1.7	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/13/05	4/13/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	100	0.5	0.21	ug/L	4/13/05	4/13/05
CLP VOL	1,1,2-Trichloroethane	0.46 J	0.5	0.2	ug/L	4/13/05	4/13/05
CLP VOL	1,1-Dichloroethane	7.1	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	1,1-Dichloroethene	32	0.5	0.30	ug/L	4/13/05	4/13/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/13/05	4/13/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/13/05	4/13/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/13/05	4/13/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/13/05	4/13/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/13/05	4/13/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/13/05	4/13/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/13/05	4/13/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/13/05	4/13/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/13/05	4/13/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/13/05	4/13/05
CLP VOL	Chloroform	0.38 J	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/13/05	4/13/05
CLP VOL	cis-1,2-Dichloroethene	77	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/13/05	4/13/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/13/05	4/13/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/13/05	4/13/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/13/05	4/13/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0412N29  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 10 27 57 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-506

Sample Collection Date: 4/12/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47099

APPL ID: AX17321

QCG: SC42VT-050412AN-85642

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	2.4	0.5	0.15	ug/L	4/13/05	4/13/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/13/05	4/13/05
CLP VOL	trans-1,2-Dichloroethene	1.1	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/13/05	4/13/05
CLP VOL	Trichloroethene	2200 E	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	Vinyl Chloride	0.64	0.5	0.23	ug/L	4/13/05	4/13/05
CLP VOL	Surrogate Recovery (BFB)	96.4	75-125		%	4/13/05	4/13/05
CLP VOL	Surrogate Recovery (DCA)	97.8	62-139		%	4/13/05	4/13/05
CLP VOL	Surrogate Recovery (TOL)	96.5	75-125		%	4/13/05	4/13/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0412N29  
Instrument: Neo  
Sequence: NC50412  
Dilution Factor: 1  
Initials: LF

Printed 4/20/05 10:27:57 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-506

Sample Collection Date: 4/12/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47099

APPL ID: AX17321

QCG: SC42VD-050415AN-86199

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Trichloroethene	4300	25	8.00	ug/L	4/15/05	4/15/05
CLP VOL	Surrogate Recovery (BFB)	107	75-125		%	4/15/05	4/15/05
CLP VOL	Surrogate Recovery (DCA)	91.5	62-139		%	4/15/05	4/15/05
CLP VOL	Surrogate Recovery (TOL)	111	75-125		%	4/15/05	4/15/05

Run #: 0415N12  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 50  
Initials: LF

Printed 4/28/05 3:57:59 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-507

Sample Collection Date: 4/12/05

ARF: 47099

APPL ID: AX17322

QCQ: \$86TTS-050412BC-85623

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 25.1 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	1.6 J	7	1.1	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	7	1.7	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	7	0.64	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,1-Dichloroethane	15	7	1.5	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,1-Dichloroethene	24	7	1.0	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,2-Dichloroethane	Not detected	7	0.96	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,2-Dichloropropane	Not detected	7	0.83	ug/Kg	4/13/05	4/13/05
EPA 8260B	2-Butanone	Not detected	67	0.95	ug/Kg	4/13/05	4/13/05
EPA 8260B	2-Hexanone	Not detected	67	0.21	ug/Kg	4/13/05	4/13/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	67	1.2	ug/Kg	4/13/05	4/13/05
EPA 8260B	Acetone	Not detected	130	3.7	ug/Kg	4/13/05	4/13/05
EPA 8260B	Benzene	Not detected	7	0.84	ug/Kg	4/13/05	4/13/05
EPA 8260B	Bromodichloromethane	Not detected	7	0.92	ug/Kg	4/13/05	4/13/05
EPA 8260B	Bromoform	Not detected	7	1.1	ug/Kg	4/13/05	4/13/05
EPA 8260B	Bromomethane	Not detected	13	2.1	ug/Kg	4/13/05	4/13/05
EPA 8260B	Carbon disulfide	Not detected	7	1.4	ug/Kg	4/13/05	4/13/05
EPA 8260B	Carbon tetrachloride	Not detected	7	1.1	ug/Kg	4/13/05	4/13/05
EPA 8260B	Chlorobenzene	Not detected	7	0.65	ug/Kg	4/13/05	4/13/05
EPA 8260B	Chloroethane	Not detected	7	2.1	ug/Kg	4/13/05	4/13/05
EPA 8260B	Chloroform	Not detected	7	1.9	ug/Kg	4/13/05	4/13/05
EPA 8260B	Chloromethane	Not detected	7	2.4	ug/Kg	4/13/05	4/13/05
EPA 8260B	cis-1,2-Dichloroethene	280	7	1.4	ug/Kg	4/13/05	4/13/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	7	0.63	ug/Kg	4/13/05	4/13/05
EPA 8260B	Dibromochloromethane	Not detected	7	1.1	ug/Kg	4/13/05	4/13/05
EPA 8260B	Ethylbenzene	Not detected	7	0.85	ug/Kg	4/13/05	4/13/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	7	1.2	ug/Kg	4/13/05	4/13/05
EPA 8260B	Methylene chloride	Not detected	67	6.1	ug/Kg	4/13/05	4/13/05
EPA 8260B	Styrene	Not detected	7	0.92	ug/Kg	4/13/05	4/13/05
EPA 8260B	Tetrachloroethene	2.6 J	7	0.72	ug/Kg	4/13/05	4/13/05
EPA 8260B	Toluene	Not detected	7	0.87	ug/Kg	4/13/05	4/13/05
EPA 8260B	trans-1,2-Dichloroethene	1.9 J	7	1.8	ug/Kg	4/13/05	4/13/05

J = Estimated value, below quantitation limit.

Run #: 0412C26  
Instrument: Chico  
Sequence: C050411  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 10:27:57 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-507

Sample Collection Date: 4/12/05

ARF: 47099

APPL ID: AX17322

QCG: \$86TTS-050412BC-85623

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	7	0.57	ug/Kg	4/13/05	4/13/05
EPA 8260B	Trichloroethene	660	7	0.95	ug/Kg	4/13/05	4/13/05
EPA 8260B	Vinyl Acetate	Not detected	67	1.3	ug/Kg	4/13/05	4/13/05
EPA 8260B	Vinyl chloride	Not detected	7	2.2	ug/Kg	4/13/05	4/13/05
EPA 8260B	Xylenes	Not detected	20	0.91	ug/Kg	4/13/05	4/13/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	110	52-149		%	4/13/05	4/13/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	100	65-135		%	4/13/05	4/13/05
EPA 8260B	Surrogate recovery: Toluene-d8	93.5	65-135		%	4/13/05	4/13/05

J = Estimated value, below quantitation limit.

Run #: 0412C26  
Instrument: Chico  
Sequence: C050411  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 10:27 57 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-508

Sample Collection Date: 4/12/05

ARF: 47099

APPL ID: AX17323

QCG: S86TTS-050412BC-85623

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 19.5 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	1.0	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.5	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.60	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,1-Dichloroethane	4.1 J	6	1.4	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,1-Dichloroethene	9.8	6	0.98	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.89	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.77	ug/Kg	4/13/05	4/13/05
EPA 8260B	2-Butanone	Not detected	62	0.88	ug/Kg	4/13/05	4/13/05
EPA 8260B	2-Hexanone	Not detected	62	0.20	ug/Kg	4/13/05	4/13/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	62	1.2	ug/Kg	4/13/05	4/13/05
EPA 8260B	Acetone	Not detected	120	3.5	ug/Kg	4/13/05	4/13/05
EPA 8260B	Benzene	Not detected	6	0.78	ug/Kg	4/13/05	4/13/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.86	ug/Kg	4/13/05	4/13/05
EPA 8260B	Bromoform	Not detected	6	0.99	ug/Kg	4/13/05	4/13/05
EPA 8260B	Bromomethane	Not detected	12	2.0	ug/Kg	4/13/05	4/13/05
EPA 8260B	Carbon disulfide	Not detected	6	1.3	ug/Kg	4/13/05	4/13/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.99	ug/Kg	4/13/05	4/13/05
EPA 8260B	Chlorobenzene	Not detected	6	0.61	ug/Kg	4/13/05	4/13/05
EPA 8260B	Chloroethane	Not detected	6	1.9	ug/Kg	4/13/05	4/13/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	4/13/05	4/13/05
EPA 8260B	Chloromethane	Not detected	6	2.3	ug/Kg	4/13/05	4/13/05
EPA 8260B	cis-1,2-Dichloroethene	730	6	1.3	ug/Kg	4/13/05	4/13/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.58	ug/Kg	4/13/05	4/13/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.1	ug/Kg	4/13/05	4/13/05
EPA 8260B	Ethylbenzene	Not detected	6	0.80	ug/Kg	4/13/05	4/13/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/13/05	4/13/05
EPA 8260B	Methylene chloride	Not detected	62	5.7	ug/Kg	4/13/05	4/13/05
EPA 8260B	Styrene	Not detected	6	0.86	ug/Kg	4/13/05	4/13/05
EPA 8260B	Tetrachloroethene	Not detected	6	0.67	ug/Kg	4/13/05	4/13/05
EPA 8260B	Toluene	Not detected	6	0.81	ug/Kg	4/13/05	4/13/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.7	ug/Kg	4/13/05	4/13/05

J = Estimated value, below quantitation limit.

Run #: 0412C27  
Instrument: Chico  
Sequence: C050411  
Dilution Factor: 1  
Initials: LF

Printed 4/20/05 10:27:57 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-508

Sample Collection Date: 4/12/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47099

APPL ID: AX17323

QCG: S86TTS-050412BC-85623

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.53	ug/Kg	4/13/05	4/13/05
EPA 8260B	Trichloroethene	67	6	0.88	ug/Kg	4/13/05	4/13/05
EPA 8260B	Vinyl Acetate	Not detected	62	1.2	ug/Kg	4/13/05	4/13/05
EPA 8260B	Vinyl chloride	Not detected	6	2.1	ug/Kg	4/13/05	4/13/05
EPA 8260B	Xylenes	Not detected	19	0.84	ug/Kg	4/13/05	4/13/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	107	52-149		%	4/13/05	4/13/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	96.6	65-135		%	4/13/05	4/13/05
EPA 8260B	Surrogate recovery: Toluene-d8	91.2	65-135		%	4/13/05	4/13/05

J = Estimated value, below quantitation limit.

Run #: 0412C27  
Instrument: Chico  
Sequence: C050411  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 10:27:57 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 68 Moffett Airfield

Sample ID: 86-WOPT-509

Sample Collection Date: 4/12/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47099

APPL ID: AX17324

QCQ: \$86TTS-050412BC-85623

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 19.8 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	1.0	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.6	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.60	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,1-Dichloroethane	Not detected	6	1.4	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,1-Dichloroethene	2.2 J	6	0.99	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.90	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.77	ug/Kg	4/13/05	4/13/05
EPA 8260B	2-Butanone	Not detected	62	0.89	ug/Kg	4/13/05	4/13/05
EPA 8260B	2-Hexanone	Not detected	62	0.20	ug/Kg	4/13/05	4/13/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	62	1.2	ug/Kg	4/13/05	4/13/05
EPA 8260B	Acetone	Not detected	120	3.5	ug/Kg	4/13/05	4/13/05
EPA 8260B	Benzene	Not detected	6	0.79	ug/Kg	4/13/05	4/13/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.86	ug/Kg	4/13/05	4/13/05
EPA 8260B	Bromoform	Not detected	6	1.0	ug/Kg	4/13/05	4/13/05
EPA 8260B	Bromomethane	Not detected	12	2.0	ug/Kg	4/13/05	4/13/05
EPA 8260B	Carbon disulfide	Not detected	6	1.4	ug/Kg	4/13/05	4/13/05
EPA 8260B	Carbon tetrachloride	Not detected	6	1.0	ug/Kg	4/13/05	4/13/05
EPA 8260B	Chlorobenzene	Not detected	6	0.61	ug/Kg	4/13/05	4/13/05
EPA 8260B	Chloroethane	Not detected	6	1.9	ug/Kg	4/13/05	4/13/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	4/13/05	4/13/05
EPA 8260B	Chloromethane	Not detected	6	2.3	ug/Kg	4/13/05	4/13/05
EPA 8260B	cis-1,2-Dichloroethene	60	6	1.3	ug/Kg	4/13/05	4/13/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.59	ug/Kg	4/13/05	4/13/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.1	ug/Kg	4/13/05	4/13/05
EPA 8260B	Ethylbenzene	Not detected	6	0.80	ug/Kg	4/13/05	4/13/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/13/05	4/13/05
EPA 8260B	Methylene chloride	Not detected	62	5.7	ug/Kg	4/13/05	4/13/05
EPA 8260B	Styrene	Not detected	6	0.86	ug/Kg	4/13/05	4/13/05
EPA 8260B	Tetrachloroethene	1.2 J	6	0.67	ug/Kg	4/13/05	4/13/05
EPA 8260B	Toluene	Not detected	6	0.81	ug/Kg	4/13/05	4/13/05
EPA 8260B	trans-1,2-Dichloroethane	Not detected	6	1.7	ug/Kg	4/13/05	4/13/05

J = Estimated value, below quantitation limit.

Run #: 0412C28  
Instrument: Chico  
Sequence: C050411  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 10:27:57 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-509**

Sample Collection Date: 4/12/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47099

**APPL ID: AX17324**

QCG: S86TTS-050412BC-85623

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.54	ug/Kg	4/13/05	4/13/05
EPA 8260B	Trichloroethene	240	6	0.89	ug/Kg	4/13/05	4/13/05
EPA 8260B	Vinyl Acetate	Not detected	62	1.2	ug/Kg	4/13/05	4/13/05
EPA 8260B	Vinyl chloride	Not detected	6	2.1	ug/Kg	4/13/05	4/13/05
EPA 8260B	Xylenes	Not detected	19	0.85	ug/Kg	4/13/05	4/13/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	104	52-149		%	4/13/05	4/13/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	99.4	65-135		%	4/13/05	4/13/05
EPA 8260B	Surrogate recovery: Toluene-d8	91.0	65-135		%	4/13/05	4/13/05

J = Estimated value, below quantitation limit.

Run #: 0412C28  
Instrument: Chico  
Sequence: C050411  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 10:27:58 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-510

Sample Collection Date: 4/12/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47099

APPL ID: AX17325

QCQ: \$86TTS-050412BC-85623

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 20.3 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	1.0	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.6	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.60	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,1-Dichloroethane	4.5 J	6	1.4	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,1-Dichloroethene	7.5	6	0.99	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.90	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.78	ug/Kg	4/13/05	4/13/05
EPA 8260B	2-Butanone	Not detected	63	0.89	ug/Kg	4/13/05	4/13/05
EPA 8260B	2-Hexanone	Not detected	63	0.20	ug/Kg	4/13/05	4/13/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	63	1.2	ug/Kg	4/13/05	4/13/05
EPA 8260B	Acetone	Not detected	130	3.5	ug/Kg	4/13/05	4/13/05
EPA 8260B	Benzene	Not detected	6	0.79	ug/Kg	4/13/05	4/13/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.87	ug/Kg	4/13/05	4/13/05
EPA 8260B	Bromoform	Not detected	6	1.0	ug/Kg	4/13/05	4/13/05
EPA 8260B	Bromomethane	Not detected	13	2.0	ug/Kg	4/13/05	4/13/05
EPA 8260B	Carbon disulfide	Not detected	6	1.4	ug/Kg	4/13/05	4/13/05
EPA 8260B	Carbon tetrachloride	Not detected	6	1.0	ug/Kg	4/13/05	4/13/05
EPA 8260B	Chlorobenzene	Not detected	6	0.61	ug/Kg	4/13/05	4/13/05
EPA 8260B	Chloroethane	Not detected	6	1.9	ug/Kg	4/13/05	4/13/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	4/13/05	4/13/05
EPA 8260B	Chloromethane	Not detected	6	2.3	ug/Kg	4/13/05	4/13/05
EPA 8260B	cis-1,2-Dichloroethene	190	6	1.3	ug/Kg	4/13/05	4/13/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.59	ug/Kg	4/13/05	4/13/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.1	ug/Kg	4/13/05	4/13/05
EPA 8260B	Ethylbenzene	Not detected	6	0.80	ug/Kg	4/13/05	4/13/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/13/05	4/13/05
EPA 8260B	Methylene chloride	Not detected	63	5.8	ug/Kg	4/13/05	4/13/05
EPA 8260B	Styrene	Not detected	6	0.87	ug/Kg	4/13/05	4/13/05
EPA 8260B	Tetrachloroethene	1.3 J	6	0.68	ug/Kg	4/13/05	4/13/05
EPA 8260B	Toluene	Not detected	6	0.82	ug/Kg	4/13/05	4/13/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.7	ug/Kg	4/13/05	4/13/05

J = Estimated value, below quantitation limit.

Run #: 0412C29  
Instrument: Chico  
Sequence: C050411  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 10:27:58 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-510

Sample Collection Date: 4/12/05

ARF: 47099

APPL ID: AX17325

QCG: S86TTS-050412BC-85623

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.54	ug/Kg	4/13/05	4/13/05
EPA 8260B	Trichloroethene	240	6	0.89	ug/Kg	4/13/05	4/13/05
EPA 8260B	Vinyl Acetate	Not detected	63	1.3	ug/Kg	4/13/05	4/13/05
EPA 8260B	Vinyl chloride	Not detected	6	2.1	ug/Kg	4/13/05	4/13/05
EPA 8260B	Xylenes	Not detected	19	0.85	ug/Kg	4/13/05	4/13/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	105	52-149		%	4/13/05	4/13/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	98.3	65-135		%	4/13/05	4/13/05
EPA 8260B	Surrogate recovery: Toluene-d8	93.8	65-135		%	4/13/05	4/13/05

J = Estimated value, below quantitation limit.

Run #: 0412C29  
Instrument: Chico  
Sequence: C050411  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 10:27:58 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-511

Sample Collection Date: 4/12/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47099

APPL ID: AX17326

QCG: \$86TTS-050412BC-85623

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 17.9 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	0.99	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.5	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.58	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,1-Dichloroethane	2.3 J	6	1.4	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,1-Dichloroethene	5.7 J	6	0.96	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.88	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.76	ug/Kg	4/13/05	4/13/05
EPA 8260B	2-Butanone	Not detected	61	0.86	ug/Kg	4/13/05	4/13/05
EPA 8260B	2-Hexanone	Not detected	61	0.19	ug/Kg	4/13/05	4/13/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	61	1.1	ug/Kg	4/13/05	4/13/05
EPA 8260B	Acetone	Not detected	120	3.4	ug/Kg	4/13/05	4/13/05
EPA 8260B	Benzene	Not detected	6	0.77	ug/Kg	4/13/05	4/13/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.84	ug/Kg	4/13/05	4/13/05
EPA 8260B	Bromoform	Not detected	6	0.97	ug/Kg	4/13/05	4/13/05
EPA 8260B	Bromomethane	Not detected	12	2.0	ug/Kg	4/13/05	4/13/05
EPA 8260B	Carbon disulfide	Not detected	6	1.3	ug/Kg	4/13/05	4/13/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.97	ug/Kg	4/13/05	4/13/05
EPA 8260B	Chlorobenzene	Not detected	6	0.60	ug/Kg	4/13/05	4/13/05
EPA 8260B	Chloroethane	Not detected	6	1.9	ug/Kg	4/13/05	4/13/05
EPA 8260B	Chloroform	Not detected	6	1.7	ug/Kg	4/13/05	4/13/05
EPA 8260B	Chloromethane	Not detected	6	2.2	ug/Kg	4/13/05	4/13/05
EPA 8260B	cis-1,2-Dichloroethene	40	6	1.3	ug/Kg	4/13/05	4/13/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.57	ug/Kg	4/13/05	4/13/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.0	ug/Kg	4/13/05	4/13/05
EPA 8260B	Ethylbenzene	Not detected	6	0.78	ug/Kg	4/13/05	4/13/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/13/05	4/13/05
EPA 8260B	Methylene chloride	Not detected	61	5.6	ug/Kg	4/13/05	4/13/05
EPA 8260B	Styrene	Not detected	6	0.84	ug/Kg	4/13/05	4/13/05
EPA 8260B	Tetrachloroethene	Not detected	6	0.66	ug/Kg	4/13/05	4/13/05
EPA 8260B	Toluene	Not detected	6	0.79	ug/Kg	4/13/05	4/13/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.6	ug/Kg	4/13/05	4/13/05

J = Estimated value, below quantitation limit.

Run #: 0412C30  
Instrument: Chico  
Sequence: C050411  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 10 27 58 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-511

Sample Collection Date: 4/12/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47099

APPL ID: AX17326

QCG: S86TTS-050412BC-85623

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected		6	0.52 ug/Kg	4/13/05	4/13/05
EPA 8260B	Trichloroethene	520		6	0.86 ug/Kg	4/13/05	4/13/05
EPA 8260B	Vinyl Acetate	Not detected		61	1.2 ug/Kg	4/13/05	4/13/05
EPA 8260B	Vinyl chloride	Not detected		6	2.0 ug/Kg	4/13/05	4/13/05
EPA 8260B	Xylenes	Not detected		18	0.83 ug/Kg	4/13/05	4/13/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	107	52-149		%	4/13/05	4/13/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	98.4	65-135		%	4/13/05	4/13/05
EPA 8260B	Surrogate recovery: Toluene-d8	90.0	65-135		%	4/13/05	4/13/05

J = Estimated value, below quantitation limit.

Run #: 0412C30  
Instrument: Chico  
Sequence: C050411  
Dilution Factor: 1  
Initials: LF

Printed 4/20/05 10 27 58 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Blenkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47099

Sample ID: 86-WOPT-512

APPL ID: AX17327

Sample Collection Date: 4/12/05

QCG: S86TTS-050412BC-85623

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 14.6 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	0.95	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.4	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.56	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,1-Dichloroethane	1.3 J	6	1.3	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,1-Dichloroethene	4.2 J	6	0.93	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.84	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.73	ug/Kg	4/13/05	4/13/05
EPA 8260B	2-Butanone	Not detected	59	0.83	ug/Kg	4/13/05	4/13/05
EPA 8260B	2-Hexanone	Not detected	59	0.19	ug/Kg	4/13/05	4/13/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	59	1.1	ug/Kg	4/13/05	4/13/05
EPA 8260B	Acetone	Not detected	120	3.3	ug/Kg	4/13/05	4/13/05
EPA 8260B	Benzene	Not detected	6	0.74	ug/Kg	4/13/05	4/13/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.81	ug/Kg	4/13/05	4/13/05
EPA 8260B	Bromoform	Not detected	6	0.94	ug/Kg	4/13/05	4/13/05
EPA 8260B	Bromomethane	Not detected	12	1.9	ug/Kg	4/13/05	4/13/05
EPA 8260B	Carbon disulfide	Not detected	6	1.3	ug/Kg	4/13/05	4/13/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.94	ug/Kg	4/13/05	4/13/05
EPA 8260B	Chlorobenzene	Not detected	6	0.57	ug/Kg	4/13/05	4/13/05
EPA 8260B	Chloroethane	Not detected	6	1.8	ug/Kg	4/13/05	4/13/05
EPA 8260B	Chloroform	Not detected	6	1.7	ug/Kg	4/13/05	4/13/05
EPA 8260B	Chloromethane	Not detected	6	2.1	ug/Kg	4/13/05	4/13/05
EPA 8260B	cis-1,2-Dichloroethene	19	6	1.2	ug/Kg	4/13/05	4/13/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.55	ug/Kg	4/13/05	4/13/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.0	ug/Kg	4/13/05	4/13/05
EPA 8260B	Ethylbenzene	Not detected	6	0.75	ug/Kg	4/13/05	4/13/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.0	ug/Kg	4/13/05	4/13/05
EPA 8260B	Methylene chloride	Not detected	59	5.4	ug/Kg	4/13/05	4/13/05
EPA 8260B	Styrene	Not detected	6	0.81	ug/Kg	4/13/05	4/13/05
EPA 8260B	Tetrachloroethene	0.75 J	6	0.63	ug/Kg	4/13/05	4/13/05
EPA 8260B	Toluene	Not detected	6	0.76	ug/Kg	4/13/05	4/13/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.6	ug/Kg	4/13/05	4/13/05

J = Estimated value, below quantitation limit.

Run #: 0412C31  
Instrument: Chico  
Sequence: C050411  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 10 27:58 AM  
APPL-F1-SC-MCRes:MCPQL-REG MDLs



**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 68 Moffett Airfield

**Sample ID: 86-WOPT-512**

Sample Collection Date: 4/12/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47099

**APPL ID: AX17327**

QCG: \$86TTS-050412BC-85623

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.50	ug/Kg	4/13/05	4/13/05
EPA 8260B	Trichloroethene	330	6	0.83	ug/Kg	4/13/05	4/13/05
EPA 8260B	Vinyl Acetate	Not detected	59	1.2	ug/Kg	4/13/05	4/13/05
EPA 8260B	Vinyl chloride	Not detected	6	2.0	ug/Kg	4/13/05	4/13/05
EPA 8260B	Xylenes	Not detected	18	0.80	ug/Kg	4/13/05	4/13/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	122	52-149		%	4/13/05	4/13/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	106	65-135		%	4/13/05	4/13/05
EPA 8260B	Surrogate recovery: Toluene-d8	91.5	65-135		%	4/13/05	4/13/05

J = Estimated value, below quantitation limit.

Run #: 0412C31  
Instrument: Chico  
Sequence: C050411  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 10:27:58 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Blenkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: **86-WOPT-513**

Sample Collection Date: 4/12/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47099

APPL ID: **AX17328**

QCG: \$86TTS-050412BC-85623

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 15.8 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	0.96	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.5	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.57	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,1-Dichloroethane	Not detected	6	1.3	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,1-Dichloroethene	2.2 J	6	0.94	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.86	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.74	ug/Kg	4/13/05	4/13/05
EPA 8260B	2-Butanone	Not detected	59	0.84	ug/Kg	4/13/05	4/13/05
EPA 8260B	2-Hexanone	Not detected	59	0.19	ug/Kg	4/13/05	4/13/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	59	1.1	ug/Kg	4/13/05	4/13/05
EPA 8260B	Acetone	Not detected	120	3.3	ug/Kg	4/13/05	4/13/05
EPA 8260B	Benzene	Not detected	6	0.75	ug/Kg	4/13/05	4/13/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.82	ug/Kg	4/13/05	4/13/05
EPA 8260B	Bromoform	Not detected	6	0.95	ug/Kg	4/13/05	4/13/05
EPA 8260B	Bromomethane	Not detected	12	1.9	ug/Kg	4/13/05	4/13/05
EPA 8260B	Carbon disulfide	Not detected	6	1.3	ug/Kg	4/13/05	4/13/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.95	ug/Kg	4/13/05	4/13/05
EPA 8260B	Chlorobenzene	Not detected	6	0.58	ug/Kg	4/13/05	4/13/05
EPA 8260B	Chloroethane	Not detected	6	1.8	ug/Kg	4/13/05	4/13/05
EPA 8260B	Chloroform	Not detected	6	1.7	ug/Kg	4/13/05	4/13/05
EPA 8260B	Chloromethane	Not detected	6	2.2	ug/Kg	4/13/05	4/13/05
EPA 8260B	cis-1,2-Dichloroethene	6.7	6	1.3	ug/Kg	4/13/05	4/13/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.56	ug/Kg	4/13/05	4/13/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.0	ug/Kg	4/13/05	4/13/05
EPA 8260B	Ethylbenzene	Not detected	6	0.76	ug/Kg	4/13/05	4/13/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/13/05	4/13/05
EPA 8260B	Methylene chloride	Not detected	59	5.4	ug/Kg	4/13/05	4/13/05
EPA 8260B	Styrene	Not detected	6	0.82	ug/Kg	4/13/05	4/13/05
EPA 8260B	Tetrachloroethene	Not detected	6	0.64	ug/Kg	4/13/05	4/13/05
EPA 8260B	Toluene	Not detected	6	0.77	ug/Kg	4/13/05	4/13/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.6	ug/Kg	4/13/05	4/13/05

J = Estimated value, below quantitation limit.

Run #: 0412C32  
Instrument: Chico  
Sequence: C050411  
Dilution Factor: 1  
Initials: LF

Printed 4/20/05 10 27 58 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-513

Sample Collection Date: 4/12/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47099

APPL ID: AX17328

QCG: S86TTS-050412BC-85623

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.51	ug/Kg	4/13/05	4/13/05
EPA 8260B	Trichloroethene	440	6	0.84	ug/Kg	4/13/05	4/13/05
EPA 8260B	Vinyl Acetate	Not detected	59	1.2	ug/Kg	4/13/05	4/13/05
EPA 8260B	Vinyl chloride	Not detected	6	2.0	ug/Kg	4/13/05	4/13/05
EPA 8260B	Xylenes	Not detected	18	0.81	ug/Kg	4/13/05	4/13/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	112	52-149		%	4/13/05	4/13/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	106	65-135		%	4/13/05	4/13/05
EPA 8260B	Surrogate recovery: Toluene-d8	93.2	65-135		%	4/13/05	4/13/05

J = Estimated value, below quantitation limit.

Run #: 0412C32  
Instrument: Chico  
Sequence: C050411  
Dilution Factor: 1  
Initials: LF

Printed 4/20/05 10:27:58 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-514

Sample Collection Date: 4/12/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47099

APPL ID: AX17329

QCG: S86TTW-050413AS-85643

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/13/05	4/13/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/13/05	4/13/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/13/05	4/13/05
EPA 8260B	1,1-Dichloroethane	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
EPA 8260B	1,1-Dichloroethene	Not detected	0.5	0.30	ug/L	4/13/05	4/13/05
EPA 8260B	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/13/05	4/13/05
EPA 8260B	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/13/05	4/13/05
EPA 8260B	2-Butanone	Not detected	5	0.6	ug/L	4/13/05	4/13/05
EPA 8260B	2-Hexanone	Not detected	5	0.92	ug/L	4/13/05	4/13/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/13/05	4/13/05
EPA 8260B	Acetone	Not detected	5	0.95	ug/L	4/13/05	4/13/05
EPA 8260B	Benzene	Not detected	0.5	0.16	ug/L	4/13/05	4/13/05
EPA 8260B	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/13/05	4/13/05
EPA 8260B	Bromoform	Not detected	0.5	0.14	ug/L	4/13/05	4/13/05
EPA 8260B	Bromomethane	Not detected	1	0.24	ug/L	4/13/05	4/13/05
EPA 8260B	Carbon disulfide	Not detected	0.5	0.2	ug/L	4/13/05	4/13/05
EPA 8260B	Carbon tetrachloride	Not detected	0.5	0.10	ug/L	4/13/05	4/13/05
EPA 8260B	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/13/05	4/13/05
EPA 8260B	Chloroethane	Not detected	0.5	0.21	ug/L	4/13/05	4/13/05
EPA 8260B	Chloroform	Not detected	0.5	0.16	ug/L	4/13/05	4/13/05
EPA 8260B	Chloromethane	Not detected	0.5	0.31	ug/L	4/13/05	4/13/05
EPA 8260B	cis-1,2-Dichloroethene	Not detected	0.5	0.16	ug/L	4/13/05	4/13/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/13/05	4/13/05
EPA 8260B	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
EPA 8260B	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/13/05	4/13/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
EPA 8260B	Methylene chloride	Not detected	5	0.35	ug/L	4/13/05	4/13/05
EPA 8260B	Styrene	Not detected	0.5	0.25	ug/L	4/13/05	4/13/05
EPA 8260B	Tetrachloroethene	Not detected	0.5	0.15	ug/L	4/13/05	4/13/05
EPA 8260B	Toluene	Not detected	0.5	0.17	ug/L	4/13/05	4/13/05
EPA 8260B	trans-1,2-Dichloroethane	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05

Run #: 0413S06  
Instrument: Sweetpea  
Sequence: S050405  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 10:27:58 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-514

Sample Collection Date: 4/12/05

ARF: 47099

APPL ID: AX17329

QCG: S86TTW-050413AS-85643

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/13/05	4/13/05
EPA 8260B	Trichloroethene	Not detected	0.5	0.16	ug/L	4/13/05	4/13/05
EPA 8260B	Vinyl Acetate	Not detected	5	0.31	ug/L	4/13/05	4/13/05
EPA 8260B	Vinyl chloride	Not detected	0.5	0.23	ug/L	4/13/05	4/13/05
EPA 8260B	Xylenes	Not detected	1.5	0.19	ug/L	4/13/05	4/13/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	122	62-139		%	4/13/05	4/13/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	107	75-125		%	4/13/05	4/13/05
EPA 8260B	Surrogate recovery: Toluene-d8	94.6	75-125		%	4/13/05	4/13/05

Run #: 0413S06  
Instrument: Sweetpea  
Sequence: S050405  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 10:27:58 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1000

Sample Collection Date: 4/12/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47099

APPL ID: AX17330

QCQ: SC42VT-050412AN-85642

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	0.78	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/13/05	4/13/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	2.9	0.5	0.21	ug/L	4/13/05	4/13/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/13/05	4/13/05
CLP VOL	1,1-Dichloroethane	41	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	1,1-Dichloroethene	49	0.5	0.30	ug/L	4/13/05	4/13/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	1,2-Dichloropropane	0.49 J	0.5	0.17	ug/L	4/13/05	4/13/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/13/05	4/13/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/13/05	4/13/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/13/05	4/13/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/13/05	4/13/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/13/05	4/13/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/13/05	4/13/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/13/05	4/13/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/13/05	4/13/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/13/05	4/13/05
CLP VOL	Chloroform	0.25 J	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/13/05	4/13/05
CLP VOL	cis-1,2-Dichloroethene	610 E	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/13/05	4/13/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/13/05	4/13/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/13/05	4/13/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/13/05	4/13/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0412N25  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 10:27:58 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1000

Sample Collection Date: 4/12/05

ARF: 47099

APPL ID: AX17330

QCG: SC42VT-050412AN-85642

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	980 E	0.5	0.15	ug/L	4/13/05	4/13/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/13/05	4/13/05
CLP VOL	trans-1,2-Dichloroethene	4.0	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/13/05	4/13/05
CLP VOL	Trichloroethene	1100 E	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	Vinyl Chloride	1.9	0.5	0.23	ug/L	4/13/05	4/13/05
CLP VOL	Surrogate Recovery (BFB)	98.9	75-125		%	4/13/05	4/13/05
CLP VOL	Surrogate Recovery (DCA)	110	62-139		%	4/13/05	4/13/05
CLP VOL	Surrogate Recovery (TOL)	101	75-125		%	4/13/05	4/13/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0412N25  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 10:27:58 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1000

Sample Collection Date: 4/12/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47099

APPL ID: AX17330

QCG: SC42VD-050415AN-86199

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	630	25	8.00	ug/L	4/15/05	4/15/05
CLP VOL	Tetrachloroethene	1100	25	7.50	ug/L	4/15/05	4/15/05
CLP VOL	Trichloroethene	1300	25	8.00	ug/L	4/15/05	4/15/05
CLP VOL	Surrogate Recovery (BFB)	99.8	75-125		%	4/15/05	4/15/05
CLP VOL	Surrogate Recovery (DCA)	99.6	62-139		%	4/15/05	4/15/05
CLP VOL	Surrogate Recovery (TOL)	104	75-125		%	4/15/05	4/15/05

Run #: 0415N13  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 50  
Initials: LF

Printed 4/29/05 10 23:50 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1001

Sample Collection Date 4/12/05

ARF: 47099

APPL ID: AX17331

QCG: \$C42VT-050412AN-85642

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/13/05	4/13/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	0.5	0.21	ug/L	4/13/05	4/13/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/13/05	4/13/05
CLP VOL	1,1-Dichloroethane	16	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	1,1-Dichloroethene	32	0.5	0.30	ug/L	4/13/05	4/13/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/13/05	4/13/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/13/05	4/13/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/13/05	4/13/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/13/05	4/13/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/13/05	4/13/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/13/05	4/13/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/13/05	4/13/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/13/05	4/13/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/13/05	4/13/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/13/05	4/13/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/13/05	4/13/05
CLP VOL	cis-1,2-Dichloroethene	2600 E	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/13/05	4/13/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/13/05	4/13/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/13/05	4/13/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/13/05	4/13/05

E = The reported value exceeds linear range.

Run #: 0412N26  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed 4/20/05 10:27:58 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1001

Sample Collection Date: 4/12/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47099

APPL ID: AX17331

QCG: \$C42VT-050412AN-85642

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	330 E	0.5	0.15	ug/L	4/13/05	4/13/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/13/05	4/13/05
CLP VOL	trans-1,2-Dichloroethene	23	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/13/05	4/13/05
CLP VOL	Trichloroethene	280 E	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	Vinyl Chloride	1.8	0.5	0.23	ug/L	4/13/05	4/13/05
CLP VOL	Surrogate Recovery (BFB)	96.9	75-125		%	4/13/05	4/13/05
CLP VOL	Surrogate Recovery (DCA)	95.5	62-139		%	4/13/05	4/13/05
CLP VOL	Surrogate Recovery (TOL)	104	75-125		%	4/13/05	4/13/05

E = The reported value exceeds linear range

Run #: 0412N26  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 10:27:58 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-1001**

Sample Collection Date: 4/12/05

ARF: 47099

**APPL ID: AX17331**

QCG: SC42VD-050417AN-85826

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	2600	50	16.00	ug/L	4/17/05	4/17/05
CLP VOL	Tetrachloroethene	98	50	15.00	ug/L	4/17/05	4/17/05
CLP VOL	Trichloroethene	97	50	16.00	ug/L	4/17/05	4/17/05
CLP VOL	Surrogate Recovery (BFB)	102	75-125		%	4/17/05	4/17/05
CLP VOL	Surrogate Recovery (DCA)	113	62-139		%	4/17/05	4/17/05
CLP VOL	Surrogate Recovery (TOL)	99.0	75-125		%	4/17/05	4/17/05

Run #: 0417N07  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 100  
Initials: LF

Printed: 4/20/05 5:10:01 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1002

Sample Collection Date: 4/12/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47099

APPL ID: AX17332

QCG: SC42VT-050412AN-85642

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/13/05	4/13/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	0.5	0.21	ug/L	4/13/05	4/13/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/13/05	4/13/05
CLP VOL	1,1-Dichloroethane	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	1,1-Dichloroethene	Not detected	0.5	0.30	ug/L	4/13/05	4/13/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/13/05	4/13/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/13/05	4/13/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/13/05	4/13/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/13/05	4/13/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/13/05	4/13/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/13/05	4/13/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/13/05	4/13/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/13/05	4/13/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/13/05	4/13/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/13/05	4/13/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/13/05	4/13/05
CLP VOL	cis-1,2-Dichloroethene	Not detected	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/13/05	4/13/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/13/05	4/13/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Methylene Chloride	0.39 J	0.5	0.35	ug/L	4/13/05	4/13/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/13/05	4/13/05

J = Estimated value, below quantitation limit.

Run #: 0412N19  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 10 27 58 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1002

Sample Collection Date: 4/12/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47099

APPL ID: AX17332

QCG: SC42VT-050412AN-85642

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	Not detected	0.5	0.15	ug/L	4/13/05	4/13/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/13/05	4/13/05
CLP VOL	trans-1,2-Dichloroethene	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/13/05	4/13/05
CLP VOL	Trichloroethene	Not detected	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	Vinyl Chloride	Not detected	0.5	0.23	ug/L	4/13/05	4/13/05
CLP VOL	Surrogate Recovery (BFB)	100	75-125		%	4/13/05	4/13/05
CLP VOL	Surrogate Recovery (DCA)	105	62-139		%	4/13/05	4/13/05
CLP VOL	Surrogate Recovery (TOL)	97.4	75-125		%	4/13/05	4/13/05

J = Estimated value, below quantitation limit.

Run #: 0412N19  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 10:27 58 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47099

Sample ID: 86-WOPT-1003

APPL ID: AX17333

Sample Collection Date: 4/12/05

QCG: SC42VT-050412AN-85642

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/13/05	4/13/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	0.5	0.21	ug/L	4/13/05	4/13/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/13/05	4/13/05
CLP VOL	1,1-Dichloroethane	18	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	1,1-Dichloroethene	39	0.5	0.30	ug/L	4/13/05	4/13/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/13/05	4/13/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/13/05	4/13/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/13/05	4/13/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/13/05	4/13/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/13/05	4/13/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/13/05	4/13/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/13/05	4/13/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/13/05	4/13/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/13/05	4/13/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/13/05	4/13/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/13/05	4/13/05
CLP VOL	cis-1,2-Dichloroethene	2800 E	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/13/05	4/13/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/13/05	4/13/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/13/05	4/13/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/13/05	4/13/05

E = The reported value exceeds linear range.

Run #: 0412N27  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 10:27:58 AM  
APPL-F1 SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1003

Sample Collection Date: 4/12/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47099

APPL ID: AX17333

QCG: SC42VT-050412AN-85642

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	290 E	0.5	0.15	ug/L	4/13/05	4/13/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/13/05	4/13/05
CLP VOL	trans-1,2-Dichloroethene	22	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/13/05	4/13/05
CLP VOL	Trichloroethene	280 E	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	Vinyl Chloride	2.3	0.5	0.23	ug/L	4/13/05	4/13/05
CLP VOL	Surrogate Recovery (BFB)	99.8	75-125		%	4/13/05	4/13/05
CLP VOL	Surrogate Recovery (DCA)	105	62-139		%	4/13/05	4/13/05
CLP VOL	Surrogate Recovery (TOL)	103	75-125		%	4/13/05	4/13/05

E = The reported value exceeds linear range.

Run #: 0412N27  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 10:27:58 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 58 Moffett Airfield

Sample ID: 86-WOPT-1003

Sample Collection Date: 4/12/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47099

APPL ID: AX17333

QCG: SC42VD-050417AN-85826

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	2600	50	16.00	ug/L	4/18/05	4/18/05
CLP VOL	Tetrachloroethene	70	50	15.00	ug/L	4/18/05	4/18/05
CLP VOL	Trichloroethene	76	50	16.00	ug/L	4/18/05	4/18/05
CLP VOL	Surrogate Recovery (BFB)	101	75-125		%	4/18/05	4/18/05
CLP VOL	Surrogate Recovery (DCA)	106	62-139		%	4/18/05	4/18/05
CLP VOL	Surrogate Recovery (TOL)	98.4	75-125		%	4/18/05	4/18/05

Run #: 0417N08  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 100  
Initials: LF

Printed 4/20/05 5:10:01 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



# CLP Volatiles Water

Tetra Tech FW, Inc  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1004

Sample Collection Date: 4/12/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47099

APPL ID: AX17334

QCG: SC42VT-050413AN-85651

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	1.1	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/13/05	4/13/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	3.2	0.5	0.21	ug/L	4/13/05	4/13/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/13/05	4/13/05
CLP VOL	1,1-Dichloroethane	9.6	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	1,1-Dichloroethene	18	0.5	0.30	ug/L	4/13/05	4/13/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/13/05	4/13/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/13/05	4/13/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/13/05	4/13/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/13/05	4/13/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/13/05	4/13/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/13/05	4/13/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/13/05	4/13/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/13/05	4/13/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/13/05	4/13/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/13/05	4/13/05
CLP VOL	Chloroform	0.18 J	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/13/05	4/13/05
CLP VOL	cis-1,2-Dichloroethene	910 E	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/13/05	4/13/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/13/05	4/13/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/13/05	4/13/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/13/05	4/13/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0413N07  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 10:27:58 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1004

Sample Collection Date: 4/12/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47099

APPL ID: AX17334

QCG: SC42VT-050413AN-85651

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	930 E	0.5	0.15	ug/L	4/13/05	4/13/05
CLP VOL	Toluene	0.28 J	0.5	0.17	ug/L	4/13/05	4/13/05
CLP VOL	trans-1,2-Dichloroethene	24	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/13/05	4/13/05
CLP VCL	Trichloroethene	720 E	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	Vinyl Chloride	1.2	0.5	0.23	ug/L	4/13/05	4/13/05
CLP VOL	Surrogate Recovery (BFB)	98.8	75-125		%	4/13/05	4/13/05
CLP VOL	Surrogate Recovery (DCA)	96.2	62-139		%	4/13/05	4/13/05
CLP VOL	Surrogate Recovery (TOL)	98.8	75-125		%	4/13/05	4/13/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0413N07  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed 4/20/05 10 27:58 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1004

Sample Collection Date: 4/12/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47099

APPL ID: AX17334

QCG: SC42VD-050417AN-85826

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	820	12.5	4.00	ug/L	4/13/05	4/18/05
CLP VOL	Tetrachloroethene	530	12.5	3.75	ug/L	4/18/05	4/18/05
CLP VOL	Trichloroethene	480	12.5	4.00	ug/L	4/18/05	4/18/05
CLP VOL	Surrogate Recovery (BFB)	99.0	75-125		%	4/18/05	4/18/05
CLP VOL	Surrogate Recovery (DCA)	114	62-139		%	4/18/05	4/18/05
CLP VOL	Surrogate Recovery (TOL)	102	75-125		%	4/18/05	4/18/05

Run #: 0417N10  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 25  
Initials: LF

Printed: 4/20/05 5:23:56 PM  
APPL-F1-SC-MCRes\MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47099

Sample ID: 86-WOPT-1005

APPL ID: AX17335

Sample Collection Date: 4/12/05

QCG: SC42VT-050412AN-85642

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	0.85	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/13/05	4/13/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	81	0.5	0.21	ug/L	4/13/05	4/13/05
CLP VOL	1,1,2-Trichloroethane	0.33 J	0.5	0.2	ug/L	4/13/05	4/13/05
CLP VOL	1,1-Dichloroethane	26	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	1,1-Dichloroethene	72	0.5	0.30	ug/L	4/13/05	4/13/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	1,2-Dichloropropane	2.4	0.5	0.17	ug/L	4/13/05	4/13/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/13/05	4/13/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/13/05	4/13/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/13/05	4/13/05
CLP VOL	Acetone	1.1 J	5	0.95	ug/L	4/13/05	4/13/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/13/05	4/13/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/13/05	4/13/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/13/05	4/13/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/13/05	4/13/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/13/05	4/13/05
CLP VOL	Chloroform	0.83	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/13/05	4/13/05
CLP VOL	cis-1,2-Dichloroethene	680 E	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/13/05	4/13/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/13/05	4/13/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/13/05	4/13/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/13/05	4/13/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0412N28  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 10:27:58 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47099

Sample ID: 86-WOPT-1005

APPL ID: AX17335

Sample Collection Date: 4/12/05

QCG: SC42VT-050412AN-85642

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	170 E	0.5	0.15	ug/L	4/13/05	4/13/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/13/05	4/13/05
CLP VOL	trans-1,2-Dichloroethene	11	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/13/05	4/13/05
CLP VOL	Trichloroethene	1500 E	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	Vinyl Chloride	1.6	0.5	0.23	ug/L	4/13/05	4/13/05
CLP VOL	Surrogate Recovery (BFB)	97.1	75-125		%	4/13/05	4/13/05
CLP VOL	Surrogate Recovery (DCA)	104	62-139		%	4/13/05	4/13/05
CLP VOL	Surrogate Recovery (TOL)	97.6	75-125		%	4/13/05	4/13/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0412N28  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 10:27:58 AM  
APPL-F1-SC-MCRes:MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-1005**

Sample Collection Date: 4/12/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47099

**APPL ID: AX17335**

QCG: \$C42VD-050417AN-85826

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	420	50	16.00	ug/L	4/18/05	4/18/05
CLP VOL	Tetrachloroethene	70	50	15.00	ug/L	4/18/05	4/18/05
CLP VOL	Trichloroethene	1200	50	16.00	ug/L	4/18/05	4/18/05
CLP VOL	Surrogate Recovery (BFB)	105	75-125		%	4/18/05	4/18/05
CLP VOL	Surrogate Recovery (DCA)	112	62-139		%	4/18/05	4/18/05
CLP VOL	Surrogate Recovery (TOL)	101	75-125		%	4/18/05	4/18/05

Run #: 0417N09

Instrument: Neo

Sequence: N050412

Dilution Factor: 100

Initials: LF

Printed 4/20/05 5:10:01 PM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47099

Sample ID: 86-WOPT-1006

APPL ID: AX17336

Sample Collection Date: 4/12/05

QCQ: SC42VT-050413AN-85651

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	2.0	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/13/05	4/13/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	72	0.5	0.21	ug/L	4/13/05	4/13/05
CLP VOL	1,1,2-Trichloroethane	0.36 J	0.5	0.2	ug/L	4/13/05	4/13/05
CLP VOL	1,1-Dichloroethane	9.0	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	1,1-Dichloroethene	31	0.5	0.30	ug/L	4/13/05	4/13/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/13/05	4/13/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/13/05	4/13/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/13/05	4/13/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/13/05	4/13/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/13/05	4/13/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/13/05	4/13/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/13/05	4/13/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/13/05	4/13/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/13/05	4/13/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/13/05	4/13/05
CLP VOL	Chloroform	0.34 J	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/13/05	4/13/05
CLP VOL	cis-1,2-Dichloroethene	110 E	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/13/05	4/13/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/13/05	4/13/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/13/05	4/13/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/13/05	4/13/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0413N06  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 10 27 58 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1006

Sample Collection Date: 4/12/05

ARF: 47099

APPL ID: AX17336

QCQ: SC42VT-050413AN-85651

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	2.1	0.5	0.15	ug/L	4/13/05	4/13/05
CLP VOL	Toluene	0.32 J	0.5	0.17	ug/L	4/13/05	4/13/05
CLP VOL	trans-1,2-Dichloroethene	1.7	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/13/05	4/13/05
CLP VOL	Trichloroethene	1500 E	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	Vinyl Chloride	Not detected	0.5	0.23	ug/L	4/13/05	4/13/05
CLP VOL	Surrogate Recovery (BFB)	111	75-125		%	4/13/05	4/13/05
CLP VOL	Surrogate Recovery (DCA)	93.4	62-139		%	4/13/05	4/13/05
CLP VOL	Surrogate Recovery (TOL)	110	75-125		%	4/13/05	4/13/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0413N06  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 10 27 58 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-1006**

Sample Collection Date: 4/12/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47099

**APPL ID: AX17336**

QCG: SC42VD-050417AN-85826

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	74	25	8.00	ug/L	4/18/05	4/18/05
CLP VOL	Trichloroethene	1500	25	8.00	ug/L	4/18/05	4/18/05
CLP VOL	Surrogate Recovery (BFB)	108	75-125		%	4/18/05	4/18/05
CLP VOL	Surrogate Recovery (DCA)	112	62-139		%	4/18/05	4/18/05
CLP VOL	Surrogate Recovery (TOL)	103	75-125		%	4/18/05	4/18/05

Run #: 0417N11

Instrument: Neo

Sequence: N050412

Dilution Factor: 50

Initials: LF

Printed: 4/20/05 5:10:01 PM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deore Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bidg 88 Moffett Airfield

Sample ID: 86-WOPT-1007

Sample Collection Date: 4/12/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47099

APPL ID: AX17337

QCG: SC42VT-050413AN-85651

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	1.3	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/13/05	4/13/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	79	0.5	0.21	ug/L	4/13/05	4/13/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/13/05	4/13/05
CLP VOL	1,1-Dichloroethane	6.1	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	1,1-Dichloroethene	26	0.5	0.30	ug/L	4/13/05	4/13/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/13/05	4/13/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/13/05	4/13/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/13/05	4/13/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/13/05	4/13/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/13/05	4/13/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/13/05	4/13/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/13/05	4/13/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/13/05	4/13/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/13/05	4/13/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/13/05	4/13/05
CLP VOL	Chloroform	0.35 J	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/13/05	4/13/05
CLP VOL	cis-1,2-Dichloroethene	66	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/13/05	4/13/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/13/05	4/13/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/13/05	4/13/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/13/05	4/13/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0413N08  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed 4/20/05 10:27:58 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990 086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1007

Sample Collection Date: 4/12/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47099

APPL ID: AX17337

QCG: \$C42VT-050413AN-85651

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	12	0.5	0.15	ug/L	4/13/05	4/13/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/13/05	4/13/05
CLP VOL	trans-1,2-Dichloroethene	1.2	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/13/05	4/13/05
CLP VOL	Trichloroethene	1600 E	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	Vinyl Chloride	0.55	0.5	0.23	ug/L	4/13/05	4/13/05
CLP VOL	Surrogate Recovery (BFB)	104	75-125		%	4/13/05	4/13/05
CLP VOL	Surrogate Recovery (DCA)	97.3	62-139		%	4/13/05	4/13/05
CLP VOL	Surrogate Recovery (TOL)	105	75-125		%	4/13/05	4/13/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0413N08  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed 4/20/05 10:27:58 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1007

Sample Collection Date: 4/12/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47099

APPL ID: AX17337

QCG: SC42VD-050417AN-85826

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Trichloroethene	1900	25	8.00	ug/L	4/18/05	4/18/05
CLP VOL	Surrogate Recovery (BFB)	105	75-125		%	4/18/05	4/18/05
CLP VOL	Surrogate Recovery (DCA)	113	62-139		%	4/18/05	4/18/05
CLP VOL	Surrogate Recovery (TOL)	102	75-125		%	4/18/05	4/18/05

Run #: 0417N12  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 50  
Initials: LF

Printed: 4/20/05 5:10:01 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

ARF. 47099

Sample ID: 86-WOPT-1008

APPL ID: AX17338

Sample Collection Date: 4/12/05

CCG: S86TTS-050412BC-85623

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 20.1 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	1.0	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.6	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.60	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,1-Dichloroethane	9.7	6	1.4	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,1-Dichloroethene	22	6	0.99	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.90	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.78	ug/Kg	4/13/05	4/13/05
EPA 8260B	2-Butanone	Not detected	63	0.89	ug/Kg	4/13/05	4/13/05
EPA 8260B	2-Hexanone	Not detected	63	0.20	ug/Kg	4/13/05	4/13/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	63	1.2	ug/Kg	4/13/05	4/13/05
EPA 8260B	Acetone	Not detected	130	3.5	ug/Kg	4/13/05	4/13/05
EPA 8260B	Benzene	Not detected	6	0.79	ug/Kg	4/13/05	4/13/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.86	ug/Kg	4/13/05	4/13/05
EPA 8260B	Bromoform	Not detected	6	1.0	ug/Kg	4/13/05	4/13/05
EPA 8260B	Bromomethane	Not detected	13	2.0	ug/Kg	4/13/05	4/13/05
EPA 8260B	Carbon disulfide	Not detected	6	1.4	ug/Kg	4/13/05	4/13/05
EPA 8260B	Carbon tetrachloride	Not detected	6	1.0	ug/Kg	4/13/05	4/13/05
EPA 8260B	Chlorobenzene	Not detected	6	0.61	ug/Kg	4/13/05	4/13/05
EPA 8260B	Chloroethane	Not detected	6	1.9	ug/Kg	4/13/05	4/13/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	4/13/05	4/13/05
EPA 8260B	Chloromethane	Not detected	6	2.3	ug/Kg	4/13/05	4/13/05
EPA 8260B	cis-1,2-Dichloroethene	450	6	1.3	ug/Kg	4/13/05	4/13/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.59	ug/Kg	4/13/05	4/13/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.1	ug/Kg	4/13/05	4/13/05
EPA 8260B	Ethylbenzene	Not detected	6	0.80	ug/Kg	4/13/05	4/13/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/13/05	4/13/05
EPA 8260B	Methylene chloride	Not detected	63	5.7	ug/Kg	4/13/05	4/13/05
EPA 8260B	Styrene	Not detected	6	0.86	ug/Kg	4/13/05	4/13/05
EPA 8260B	Tetrachloroethene	4700 E	6	0.68	ug/Kg	4/13/05	4/13/05
EPA 8260B	Toluene	Not detected	6	0.81	ug/Kg	4/13/05	4/13/05
EPA 8260B	trans-1,2-Dichloroethene	3.1 J	6	1.7	ug/Kg	4/13/05	4/13/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0412C33  
Instrument: Chico  
Sequence: C050411  
Dilution Factor: 1  
Initials: LF

Printed 4/20/05 10 27 58 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1008

Sample Collection Date: 4/12/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47099

APPL ID: AX17338

QCG: S86TTS-050412BC-85623

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected		6	0.54 ug/Kg	4/13/05	4/13/05
EPA 8260B	Trichloroethene	1700 E		6	0.89 ug/Kg	4/13/05	4/13/05
EPA 8260B	Vinyl Acetate	Not detected		63	1.3 ug/Kg	4/13/05	4/13/05
EPA 8260B	Vinyl chloride	Not detected		6	2.1 ug/Kg	4/13/05	4/13/05
EPA 8260B	Xylenes	Not detected		19	0.85 ug/Kg	4/13/05	4/13/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	112	52-149		%	4/13/05	4/13/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	93.9	65-135		%	4/13/05	4/13/05
EPA 8260B	Surrogate recovery: Toluene-d8	102	65-135		%	4/13/05	4/13/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0412C33  
Instrument: Chico  
Sequence: C050411  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 10:27:58 AM  
APPL-F1-SC-MCRes\MCPQL-REG MDLs

## EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 83 Moffett Airfield

Sample ID: **86-WOPT-1008**

Sample Collection Date: 4/12/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47099

APPL ID: **AX17338**

QCG: \$86TTD-050417BM-86216

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 20.1 Percent Moisture.)							
EPA 8260B-	1,1,2,2-Tetrachloroethane	Not detected	31	17	ug/Kg	4/18/05	4/18/05
EPA 8260B-	4-Methyl-2-pentanone	Not detected	310	120	ug/Kg	4/18/05	4/18/05
EPA 8260B-	Tetrachloroethene	6400	31	9.4	ug/Kg	4/18/05	4/18/05
EPA 8260B-	Trichloroethene	1100	31	10	ug/Kg	4/18/05	4/18/05
EPA 8260B-	Surrogate recovery: 1,2-Dichloroethane	104	52-149		%	4/18/05	4/18/05
EPA 8260B-	Surrogate recovery: 4-Bromofluorobenz	93.2	65-135		%	4/18/05	4/18/05
EPA 8260B-	Surrogate recovery: Toluene-d8	101	65-135		%	4/18/05	4/18/05

Run #: 0417M28  
Instrument: Max  
Sequence: M050414  
Dilution Factor: 50  
Initials: LF

Printed: 4/29/05 10:25:28 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47099

Sample ID: 86-WOPT-1009

APPL ID: AX17339

Sample Collection Date: 4/12/05

QCG: S86TTS-050412BC-85623

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 20.9 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	1.0	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.6	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.61	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,1-Dichloroethane	2.7 J	6	1.4	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,1-Dichloroethene	5.6 J	6	1.0	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.91	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.78	ug/Kg	4/13/05	4/13/05
EPA 8260B	2-Butanone	Not detected	63	0.90	ug/Kg	4/13/05	4/13/05
EPA 8260B	2-Hexanone	Not detected	63	0.20	ug/Kg	4/13/05	4/13/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	63	1.2	ug/Kg	4/13/05	4/13/05
EPA 8260B	Acetone	Not detected	130	3.5	ug/Kg	4/13/05	4/13/05
EPA 8260B	Benzene	Not detected	6	0.80	ug/Kg	4/13/05	4/13/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.87	ug/Kg	4/13/05	4/13/05
EPA 8260B	Bromoform	Not detected	6	1.0	ug/Kg	4/13/05	4/13/05
EPA 8260B	Bromomethane	Not detected	13	2.0	ug/Kg	4/13/05	4/13/05
EPA 8260B	Carbon disulfide	Not detected	6	1.4	ug/Kg	4/13/05	4/13/05
EPA 8260B	Carbon tetrachloride	Not detected	6	1.0	ug/Kg	4/13/05	4/13/05
EPA 8260B	Chlorobenzene	Not detected	6	0.62	ug/Kg	4/13/05	4/13/05
EPA 8260B	Chloroethane	Not detected	6	2.0	ug/Kg	4/13/05	4/13/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	4/13/05	4/13/05
EPA 8260B	Chloromethane	Not detected	6	2.3	ug/Kg	4/13/05	4/13/05
EPA 8260B	cis-1,2-Dichloroethene	1400 E	6	1.4	ug/Kg	4/13/05	4/13/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.59	ug/Kg	4/13/05	4/13/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.1	ug/Kg	4/13/05	4/13/05
EPA 8260B	Ethylbenzene	Not detected	6	0.81	ug/Kg	4/13/05	4/13/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/13/05	4/13/05
EPA 8260B	Methylene chloride	Not detected	63	5.8	ug/Kg	4/13/05	4/13/05
EPA 8260B	Styrene	Not detected	6	0.87	ug/Kg	4/13/05	4/13/05
EPA 8260B	Tetrachloroethene	310	6	0.68	ug/Kg	4/13/05	4/13/05
EPA 8260B	Toluene	Not detected	6	0.82	ug/Kg	4/13/05	4/13/05
EPA 8260B	trans-1,2-Dichloroethene	4.8 J	6	1.7	ug/Kg	4/13/05	4/13/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0412C34  
Instrument: Chico  
Sequence: C050411  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 10:27:58 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47099

Sample ID: 86-WOPT-1009

APPL ID: AX17339

Sample Collection Date: 4/12/05

QCG: \$86TTS-050412BC-85623

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.54	ug/Kg	4/13/05	4/13/05
EPA 8260B	Trichloroethene	190	6	0.90	ug/Kg	4/13/05	4/13/05
EPA 8260B	Vinyl Acetate	Not detected	63	1.3	ug/Kg	4/13/05	4/13/05
EPA 8260B	Vinyl chloride	Not detected	6	2.1	ug/Kg	4/13/05	4/13/05
EPA 8260B	Xylenes	Not detected	19	0.86	ug/Kg	4/13/05	4/13/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	114	52-149		%	4/13/05	4/13/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	105	65-135		%	4/13/05	4/13/05
EPA 8260B	Surrogate recovery: Toluene-d8	90.7	65-135		%	4/13/05	4/13/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0412C34  
Instrument: Chico  
Sequence: C050411  
Dilution Factor: 1  
Initials: LF

Printed 4/20/05 10:27:58 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF. 47099

Sample ID: 86-WOPT-1010

APPL ID: AX17340

Sample Collection Date: 4/12/05

QCG: \$86TTS-050412BC-85623

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 19.9 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	1.0	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.6	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.60	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,1-Dichloroethane	1.9 J	6	1.4	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,1-Dichloroethene	4.7 J	6	0.99	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.90	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.77	ug/Kg	4/13/05	4/13/05
EPA 8260B	2-Butanone	Not detected	62	0.89	ug/Kg	4/13/05	4/13/05
EPA 8260B	2-Hexanone	Not detected	62	0.20	ug/Kg	4/13/05	4/13/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	62	1.2	ug/Kg	4/13/05	4/13/05
EPA 8260B	Acetone	Not detected	120	3.5	ug/Kg	4/13/05	4/13/05
EPA 8260B	Benzene	Not detected	6	0.79	ug/Kg	4/13/05	4/13/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.86	ug/Kg	4/13/05	4/13/05
EPA 8260B	Bromoform	Not detected	6	1.0	ug/Kg	4/13/05	4/13/05
EPA 8260B	Bromomethane	Not detected	12	2.0	ug/Kg	4/13/05	4/13/05
EPA 8260B	Carbon disulfide	Not detected	6	1.4	ug/Kg	4/13/05	4/13/05
EPA 8260B	Carbon tetrachloride	Not detected	6	1.0	ug/Kg	4/13/05	4/13/05
EPA 8260B	Chlorobenzene	Not detected	6	0.61	ug/Kg	4/13/05	4/13/05
EPA 8260B	Chloroethane	Not detected	6	1.9	ug/Kg	4/13/05	4/13/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	4/13/05	4/13/05
EPA 8260B	Chloromethane	Not detected	6	2.3	ug/Kg	4/13/05	4/13/05
EPA 8260B	cis-1,2-Dichloroethene	280	6	1.3	ug/Kg	4/13/05	4/13/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.59	ug/Kg	4/13/05	4/13/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.1	ug/Kg	4/13/05	4/13/05
EPA 8260B	Ethylbenzene	Not detected	6	0.80	ug/Kg	4/13/05	4/13/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/13/05	4/13/05
EPA 8260B	Methylene chloride	Not detected	62	5.7	ug/Kg	4/13/05	4/13/05
EPA 8260B	Styrene	Not detected	6	0.86	ug/Kg	4/13/05	4/13/05
EPA 8260B	Tetrachloroethene	330	6	0.67	ug/Kg	4/13/05	4/13/05
EPA 8260B	Toluene	Not detected	6	0.81	ug/Kg	4/13/05	4/13/05
EPA 8260B	trans-1,2-Dichloroethene	7.2	6	1.7	ug/Kg	4/13/05	4/13/05

J = Estimated value, below quantitation limit.

Run #: 0412C35  
Instrument: Chico  
Sequence: C050411  
Dilution Factor: 1  
Initials: LF

Printed: 4/29/05 10:24:01 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1010

Sample Collection Date: 4/12/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47099

APPL ID: AX17340

QCG: S86TTS-050412BC-85623

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.54	ug/Kg	4/13/05	4/13/05
EPA 8260B	Trichloroethene	530	6	0.89	ug/Kg	4/13/05	4/13/05
EPA 8260B	Vinyl Acetate	Not detected	62	1.2	ug/Kg	4/13/05	4/13/05
EPA 8260B	Vinyl chloride	Not detected	6	2.1	ug/Kg	4/13/05	4/13/05
EPA 8260B	Xylenes	Not detected	19	0.85	ug/Kg	4/13/05	4/13/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	113	52-149		%	4/13/05	4/13/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	112	65-135		%	4/13/05	4/13/05
EPA 8260B	Surrogate recovery: Toluene-d8	94.0	65-135		%	4/13/05	4/13/05

J = Estimated value, below quantitation limit.

Run #: 0412C35  
Instrument: Chico  
Sequence: C050411  
Dilution Factor: 1  
Initials: LF

Printed: 4/29/05 10:24 01 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1011

Sample Collection Date: 4/12/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47099

APPL ID: AX17341

QCG: \$86TTS-050412BC-85623

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 22.4 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	1.0	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.6	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.62	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,1-Dichloroethane	5.3 J	6	1.5	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,1-Dichloroethene	6.7	6	1.0	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.93	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.80	ug/Kg	4/13/05	4/13/05
EPA 8260B	2-Butanone	Not detected	64	0.91	ug/Kg	4/13/05	4/13/05
EPA 8260B	2-Hexanone	Not detected	64	0.21	ug/Kg	4/13/05	4/13/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	64	1.2	ug/Kg	4/13/05	4/13/05
EPA 8260B	Acetone	Not detected	130	3.6	ug/Kg	4/13/05	4/13/05
EPA 8260B	Benzene	Not detected	6	0.81	ug/Kg	4/13/05	4/13/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.89	ug/Kg	4/13/05	4/13/05
EPA 8260B	Bromoform	Not detected	6	1.0	ug/Kg	4/13/05	4/13/05
EPA 8260B	Bromomethane	Not detected	13	2.1	ug/Kg	4/13/05	4/13/05
EPA 8260B	Carbon disulfide	Not detected	6	1.4	ug/Kg	4/13/05	4/13/05
EPA 8260B	Carbon tetrachloride	Not detected	6	1.0	ug/Kg	4/13/05	4/13/05
EPA 8260B	Chlorobenzene	Not detected	6	0.63	ug/Kg	4/13/05	4/13/05
EPA 8260B	Chloroethane	Not detected	6	2.0	ug/Kg	4/13/05	4/13/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	4/13/05	4/13/05
EPA 8260B	Chloromethane	Not detected	6	2.4	ug/Kg	4/13/05	4/13/05
EPA 8260B	cis-1,2-Dichloroethene	150	6	1.4	ug/Kg	4/13/05	4/13/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.61	ug/Kg	4/13/05	4/13/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.1	ug/Kg	4/13/05	4/13/05
EPA 8260B	Ethylbenzene	Not detected	6	0.82	ug/Kg	4/13/05	4/13/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/13/05	4/13/05
EPA 8260B	Methylene chloride	Not detected	64	5.9	ug/Kg	4/13/05	4/13/05
EPA 8260B	Styrene	Not detected	6	0.89	ug/Kg	4/13/05	4/13/05
EPA 8260B	Tetrachloroethene	650	6	0.70	ug/Kg	4/13/05	4/13/05
EPA 8260B	Toluene	Not detected	6	0.84	ug/Kg	4/13/05	4/13/05
EPA 8260B	trans-1,2-Dichloroethene	2.5 J	6	1.7	ug/Kg	4/13/05	4/13/05

J = Estimated value, below quantitation limit.

Run #: 0412C36  
Instrument: Chico  
Sequence: C050411  
Dilution Factor: 1  
Initials: LF

Printed 4/20/05 10 27 59 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech F/W, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1011

Sample Collection Date: 4/12/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47099

APPL ID: AX17341

QCG: \$86TTS-050412BC-85623

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.55	ug/Kg	4/13/05	4/13/05
EPA 8260B	Trichloroethene	390	6	0.91	ug/Kg	4/13/05	4/13/05
EPA 8260B	Vinyl Acetate	Not detected	64	1.3	ug/Kg	4/13/05	4/13/05
EPA 8260B	Vinyl chloride	Not detected	6	2.2	ug/Kg	4/13/05	4/13/05
EPA 8260B	Xylenes	Not detected	19	0.88	ug/Kg	4/13/05	4/13/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	117	52-149		%	4/13/05	4/13/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	108	65-135		%	4/13/05	4/13/05
EPA 8260B	Surrogate recovery: Toluene-d8	90.6	65-135		%	4/13/05	4/13/05

J = Estimated value, below quantitation limit

Run #: 0412C36  
Instrument: Chico  
Sequence: C050411  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 10:27:59 AM  
APPL-F1-SC-MCRes:MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 2C  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47099

Sample ID: 86-WOPT-1012

APPL ID: AX17342

Sample Collection Date: 4/12/05

QCQ: \$86TTS-050412BC-85623

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 16.2 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	0.97	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.5	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.57	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,1-Dichloroethane	4.0 J	6	1.4	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,1-Dichloroethene	11	6	0.94	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.86	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.74	ug/Kg	4/13/05	4/13/05
EPA 8260B	2-Butanone	Not detected	60	0.85	ug/Kg	4/13/05	4/13/05
EPA 8260B	2-Hexanone	Not detected	60	0.19	ug/Kg	4/13/05	4/13/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	60	1.1	ug/Kg	4/13/05	4/13/05
EPA 8260B	Acetone	Not detected	120	3.3	ug/Kg	4/13/05	4/13/05
EPA 8260B	Benzene	Not detected	6	0.75	ug/Kg	4/13/05	4/13/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.82	ug/Kg	4/13/05	4/13/05
EPA 8260B	Bromoform	Not detected	6	0.95	ug/Kg	4/13/05	4/13/05
EPA 8260B	Bromomethane	Not detected	12	1.9	ug/Kg	4/13/05	4/13/05
EPA 8260B	Carbon disulfide	Not detected	6	1.3	ug/Kg	4/13/05	4/13/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.95	ug/Kg	4/13/05	4/13/05
EPA 8260B	Chlorobenzene	Not detected	6	0.58	ug/Kg	4/13/05	4/13/05
EPA 8260B	Chloroethane	Not detected	6	1.8	ug/Kg	4/13/05	4/13/05
EPA 8260B	Chloroform	Not detected	6	1.7	ug/Kg	4/13/05	4/13/05
EPA 8260B	Chloromethane	Not detected	6	2.2	ug/Kg	4/13/05	4/13/05
EPA 8260B	cis-1,2-Dichloroethene	110	6	1.3	ug/Kg	4/13/05	4/13/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.56	ug/Kg	4/13/05	4/13/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.0	ug/Kg	4/13/05	4/13/05
EPA 8260B	Ethylbenzene	Not detected	6	0.76	ug/Kg	4/13/05	4/13/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/13/05	4/13/05
EPA 8260B	Methylene chloride	Not detected	60	5.5	ug/Kg	4/13/05	4/13/05
EPA 8260B	Styrene	Not detected	6	0.82	ug/Kg	4/13/05	4/13/05
EPA 8260B	Tetrachloroethene	26	6	0.64	ug/Kg	4/13/05	4/13/05
EPA 8260B	Toluene	Not detected	6	0.78	ug/Kg	4/13/05	4/13/05
EPA 8260B	trans-1,2-Dichloroethene	2.7 J	6	1.6	ug/Kg	4/13/05	4/13/05

J = Estimated value, below quantitation limit.

Run #: 0412C37  
Instrument: Chlco  
Sequence: C050411  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 10:27:59 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 98 Moffett Airfield

ARF: 47099

Sample ID: 86-WOPT-1012

APPL ID: AX17342

Sample Collection Date: 4/12/05

QCG: S86TTS-050412BC-85623

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.51	ug/Kg	4/13/05	4/13/05
EPA 8260B	Trichloroethene	580	6	0.85	ug/Kg	4/13/05	4/13/05
EPA 8260B	Vinyl Acetate	Not detected	60	1.2	ug/Kg	4/13/05	4/13/05
EPA 8260B	Vinyl chloride	Not detected	6	2.0	ug/Kg	4/13/05	4/13/05
EPA 8260B	Xylenes	Not detected	18	0.81	ug/Kg	4/13/05	4/13/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	112	52-149		%	4/13/05	4/13/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	103	65-135		%	4/13/05	4/13/05
EPA 8260B	Surrogate recovery: Toluene-d8	87.5	65-135		%	4/13/05	4/13/05

J = Estimated value, below quantitation limit.

Run #: 0412C37  
Instrument: Chico  
Sequence: C050411  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 10:27:59 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

ARF: 47099

Sample ID: 86-WOPT-1013

APPL ID: AX17343

Sample Collection Date: 4/12/05

QCQ: S86TTS-050412BC-85623

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 3.9 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	5	0.84	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	5	1.3	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	5	0.50	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,1-Dichloroethane	Not detected	5	1.2	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,1-Dichloroethene	1.8 J	5	0.82	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,2-Dichloroethane	Not detected	5	0.75	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,2-Dichloropropane	Not detected	5	0.65	ug/Kg	4/13/05	4/13/05
EPA 8260B	2-Butanone	Not detected	52	0.74	ug/Kg	4/13/05	4/13/05
EPA 8260B	2-Hexanone	Not detected	52	0.17	ug/Kg	4/13/05	4/13/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	52	0.97	ug/Kg	4/13/05	4/13/05
EPA 8260B	Acetone	Not detected	100	2.9	ug/Kg	4/13/05	4/13/05
EPA 8260B	Benzene	Not detected	5	0.66	ug/Kg	4/13/05	4/13/05
EPA 8260B	Bromodichloromethane	Not detected	5	0.72	ug/Kg	4/13/05	4/13/05
EPA 8260B	Bromoform	Not detected	5	0.83	ug/Kg	4/13/05	4/13/05
EPA 8260B	Bromomethane	Not detected	10	1.7	ug/Kg	4/13/05	4/13/05
EPA 8260B	Carbon disulfide	Not detected	5	1.1	ug/Kg	4/13/05	4/13/05
EPA 8260B	Carbon tetrachloride	Not detected	5	0.83	ug/Kg	4/13/05	4/13/05
EPA 8260B	Chlorobenzene	Not detected	5	0.51	ug/Kg	4/13/05	4/13/05
EPA 8260B	Chloroethane	Not detected	5	1.6	ug/Kg	4/13/05	4/13/05
EPA 8260B	Chloroform	Not detected	5	1.5	ug/Kg	4/13/05	4/13/05
EPA 8260B	Chloromethane	Not detected	5	1.9	ug/Kg	4/13/05	4/13/05
EPA 8260B	cis-1,2-Dichloroethene	12	5	1.1	ug/Kg	4/13/05	4/13/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	5	0.49	ug/Kg	4/13/05	4/13/05
EPA 8260B	Dibromochloromethane	Not detected	5	0.88	ug/Kg	4/13/05	4/13/05
EPA 8260B	Ethylbenzene	Not detected	5	0.67	ug/Kg	4/13/05	4/13/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	5	0.93	ug/Kg	4/13/05	4/13/05
EPA 8260B	Methylene chloride	Not detected	52	4.8	ug/Kg	4/13/05	4/13/05
EPA 8260B	Styrene	Not detected	5	0.72	ug/Kg	4/13/05	4/13/05
EPA 8260B	Tetrachloroethene	Not detected	5	0.56	ug/Kg	4/13/05	4/13/05
EPA 8260B	Toluene	Not detected	5	0.68	ug/Kg	4/13/05	4/13/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	5	1.4	ug/Kg	4/13/05	4/13/05

J = Estimated value, below quantitation limit.

Run #: 0412C38  
Instrument: Chico  
Sequence: C050411  
Dilution Factor: 1  
Initials: LF

Printed 4/20/05 10:27:59 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1013

Sample Collection Date: 4/12/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47099

APPL ID: AX17343

QCG: \$86TTS-050412BC-85623

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	5	0.45	ug/Kg	4/13/05	4/13/05
EPA 8260B	Trichloroethene	440	5	0.74	ug/Kg	4/13/05	4/13/05
EPA 8260B	Vinyl Acetate	Not detected	52	1.0	ug/Kg	4/13/05	4/13/05
EPA 8260B	Vinyl chloride	Not detected	5	1.8	ug/Kg	4/13/05	4/13/05
EPA 8260B	Xylenes	Not detected	16	0.71	ug/Kg	4/13/05	4/13/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	112	52-149		%	4/13/05	4/13/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	108	65-135		%	4/13/05	4/13/05
EPA 8260B	Surrogate recovery: Toluene-d8	98.5	65-135		%	4/13/05	4/13/05

J = Estimated value, below quantitation limit.

Run #: 0412C38  
Instrument: Chico  
Sequence: C050411  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 10:27:59 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Blenkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1014

Sample Collection Date: 4/12/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47099

APPL ID: AX17344

QCQ: \$86TTS-050413AC-85650

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 9.7 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	0.90	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.4	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.53	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,1-Dichloroethane	Not detected	6	1.2	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,1-Dichloroethene	2.2 J	6	0.87	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.80	ug/Kg	4/13/05	4/13/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.69	ug/Kg	4/13/05	4/13/05
EPA 8260B	2-Butanone	Not detected	55	0.79	ug/Kg	4/13/05	4/13/05
EPA 8260B	2-Hexanone	Not detected	55	0.18	ug/Kg	4/13/05	4/13/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	55	1.0	ug/Kg	4/13/05	4/13/05
EPA 8260B	Acetone	Not detected	110	3.1	ug/Kg	4/13/05	4/13/05
EPA 8260B	Benzene	Not detected	6	0.70	ug/Kg	4/13/05	4/13/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.76	ug/Kg	4/13/05	4/13/05
EPA 8260B	Bromoform	Not detected	6	0.89	ug/Kg	4/13/05	4/13/05
EPA 8260B	Bromomethane	Not detected	11	1.8	ug/Kg	4/13/05	4/13/05
EPA 8260B	Carbon disulfide	Not detected	6	1.2	ug/Kg	4/13/05	4/13/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.89	ug/Kg	4/13/05	4/13/05
EPA 8260B	Chlorobenzene	Not detected	6	0.54	ug/Kg	4/13/05	4/13/05
EPA 8260B	Chloroethane	Not detected	6	1.7	ug/Kg	4/13/05	4/13/05
EPA 8260B	Chloroform	Not detected	6	1.6	ug/Kg	4/13/05	4/13/05
EPA 8260B	Chloromethane	Not detected	6	2.0	ug/Kg	4/13/05	4/13/05
EPA 8260B	cis-1,2-Dichloroethene	6.7	6	1.2	ug/Kg	4/13/05	4/13/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.52	ug/Kg	4/13/05	4/13/05
EPA 8260B	Dibromochloromethane	Not detected	6	0.94	ug/Kg	4/13/05	4/13/05
EPA 8260B	Ethylbenzene	Not detected	6	0.71	ug/Kg	4/13/05	4/13/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	0.99	ug/Kg	4/13/05	4/13/05
EPA 8260B	Methylene chloride	Not detected	55	5.1	ug/Kg	4/13/05	4/13/05
EPA 8260B	Styrene	Not detected	6	0.76	ug/Kg	4/13/05	4/13/05
EPA 8260B	Tetrachloroethene	2.6 J	6	0.60	ug/Kg	4/13/05	4/13/05
EPA 8260B	Toluene	Not detected	6	0.72	ug/Kg	4/13/05	4/13/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.5	ug/Kg	4/13/05	4/13/05

J = Estimated value, below quantitation limit.

Run #: 0413C06  
Instrument: Chico  
Sequence: C050411  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 10:27:59 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47099

**Sample ID: 86-WOPT-1014**

**APPL ID: AX17344**

Sample Collection Date: 4/12/05

QCG: S86TTS-050413AC-85650

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.48	ug/Kg	4/13/05	4/13/05
EPA 8260B	Trichloroethene	420	6	0.79	ug/Kg	4/13/05	4/13/05
EPA 8260B	Vinyl Acetate	Not detected	55	1.1	ug/Kg	4/13/05	4/13/05
EPA 8260B	Vinyl chloride	Not detected	6	1.9	ug/Kg	4/13/05	4/13/05
EPA 8260B	Xylenes	Not detected	17	0.75	ug/Kg	4/13/05	4/13/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	116	52-149		%	4/13/05	4/13/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	105	65-135		%	4/13/05	4/13/05
EPA 8260B	Surrogate recovery: Toluene-d8	89.7	65-135		%	4/13/05	4/13/05

J = Estimated value, below quantitation limit.

Run #: 0413C06  
Instrument: Chico  
Sequence: C050411  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 10:27:59 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1015

Sample Collection Date: 4/12/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47099

APPL ID: AX17345

QCG: \$86TTW-050413AS-85643

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/13/05	4/13/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/13/05	4/13/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/13/05	4/13/05
EPA 8260B	1,1-Dichloroethane	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
EPA 8260B	1,1-Dichloroethene	Not detected	0.5	0.30	ug/L	4/13/05	4/13/05
EPA 8260B	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/13/05	4/13/05
EPA 8260B	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/13/05	4/13/05
EPA 8260B	2-Butanone	Not detected	5	0.6	ug/L	4/13/05	4/13/05
EPA 8260B	2-Hexanone	Not detected	5	0.92	ug/L	4/13/05	4/13/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/13/05	4/13/05
EPA 8260B	Acetone	Not detected	5	0.95	ug/L	4/13/05	4/13/05
EPA 8260B	Benzene	Not detected	0.5	0.16	ug/L	4/13/05	4/13/05
EPA 8260B	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/13/05	4/13/05
EPA 8260B	Bromoform	Not detected	0.5	0.14	ug/L	4/13/05	4/13/05
EPA 8260B	Bromomethane	Not detected	1	0.24	ug/L	4/13/05	4/13/05
EPA 8260B	Carbon disulfide	Not detected	0.5	0.2	ug/L	4/13/05	4/13/05
EPA 8260B	Carbon tetrachloride	Not detected	0.5	0.10	ug/L	4/13/05	4/13/05
EPA 8260B	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/13/05	4/13/05
EPA 8260B	Chloroethane	Not detected	0.5	0.21	ug/L	4/13/05	4/13/05
EPA 8260B	Chloroform	Not detected	0.5	0.16	ug/L	4/13/05	4/13/05
EPA 8260B	Chloromethane	Not detected	0.5	0.31	ug/L	4/13/05	4/13/05
EPA 8260B	cis-1,2-Dichloroethene	Not detected	0.5	0.16	ug/L	4/13/05	4/13/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/13/05	4/13/05
EPA 8260B	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
EPA 8260B	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/13/05	4/13/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
EPA 8260B	Methylene chloride	Not detected	5	0.35	ug/L	4/13/05	4/13/05
EPA 8260B	Styrene	Not detected	0.5	0.25	ug/L	4/13/05	4/13/05
EPA 8260B	Tetrachloroethene	Not detected	0.5	0.15	ug/L	4/13/05	4/13/05
EPA 8260B	Toluene	Not detected	0.5	0.17	ug/L	4/13/05	4/13/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05

Run #: 0413S07  
Instrument: Sweetpea  
Sequence: S050405  
Dilution Factor: 1  
Initials: LF

Printed 4/20/05 10:27:59 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47099

Sample ID: 86-WOPT-1015

APPL ID: AX17345

Sample Collection Date: 4/12/05

QCG: \$86TTW-050413AS-85643

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/13/05	4/13/05
EPA 8260B	Trichloroethene	Not detected	0.5	0.16	ug/L	4/13/05	4/13/05
EPA 8260B	Vinyl Acetate	Not detected	5	0.31	ug/L	4/13/05	4/13/05
EPA 8260B	Vinyl chloride	Not detected	0.5	0.23	ug/L	4/13/05	4/13/05
EPA 8260B	Xylenes	Not detected	1.5	0.19	ug/L	4/13/05	4/13/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	132	62-139		%	4/13/05	4/13/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	107	75-125		%	4/13/05	4/13/05
EPA 8260B	Surrogate recovery: Toluene-d8	94.2	75-125		%	4/13/05	4/13/05

Run #: 0413S07  
Instrument: Sweetpea  
Sequence: S050405  
Dilution Factor: 1  
Initials: LF

Printed 4/20/05 10:27 59 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-500

Sample Collection Date: 4/12/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47099

APPL ID: AX17315

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	262	25	0.14	mg/L	4/18/05	4/20/05
6010B	Calcium (Ca)	255 E	5	0.0272	mg/L	4/18/05	4/20/05
6010B	Iron (Fe)	22.3	0.1	0.0258	mg/L	4/18/05	4/20/05
6010B	Magnesium (Mg)	88.7	5	0.0129	mg/L	4/18/05	4/20/05
6010B	Potassium (K)	9.2	5	0.0995	mg/L	4/18/05	4/20/05
6010B	Sodium (Na)	43.0	5	0.1111	mg/L	4/18/05	4/20/05

E = The reported value exceeds linear range.

Printed: 4/22/05 11:52:22 AM

L-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

ARF: 47099

Sample ID: 86-WOPT-502

APPL ID: AX17317

Sample Collection Date: 4/12/05

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	1430	100	0.54	mg/L	4/18/05	4/21/05
6010B	Calcium (Ca)	1300 E	5	0.0272	mg/L	4/18/05	4/20/05
6010B	Iron (Fe)	156	0.50	0.13	mg/L	4/18/05	4/20/05
6010B	Iron (Fe)	142 E	0.1	0.0258	mg/L	4/18/05	4/20/05
6010B	Magnesium (Mg)	138	25	0.065	mg/L	4/18/05	4/20/05
6010B	Magnesium (Mg)	137 E	5	0.0129	mg/L	4/18/05	4/20/05
6010B	Potassium (K)	6.2	5	0.0995	mg/L	4/18/05	4/20/05
6010B	Sodium (Na)	45.1	5	0.1111	mg/L	4/18/05	4/20/05

E = The reported value exceeds linear range.

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2L-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-503

Sample Collection Date: 4/12/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47099

APPL ID: AX17318

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	606	50	0.27	mg/L	4/18/05	4/21/05
6010B	Calcium (Ca)	565 E	5	0.0272	mg/L	4/18/05	4/20/05
6010B	Iron (Fe)	99.6	0.50	0.13	mg/L	4/18/05	4/20/05
6010B	Iron (Fe)	93.8 E	0.1	0.0258	mg/L	4/18/05	4/20/05
6010B	Magnesium (Mg)	99.0	25	0.065	mg/L	4/18/05	4/20/05
6010B	Magnesium (Mg)	100 E	5	0.0129	mg/L	4/18/05	4/20/05
6010B	Potassium (K)	6.2	5	0.0995	mg/L	4/18/05	4/20/05
6010B	Sodium (Na)	43.1	5	0.1111	mg/L	4/18/05	4/20/05

E = The reported value exceeds linear range.

Printed: 4/22/05 11:52:22 AM  
2L-F1-SC-MCRes/MCPQL-REG MDLs



## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-504

Sample Collection Date: 4/12/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47099

APPL ID: AX17319

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	5720	500	2.7	mg/L	4/18/05	4/21/05
6010B	Calcium (Ca)	3670 E	5	0.0272	mg/L	4/18/05	4/20/05
6010B	Iron (Fe)	6010	50	0.0258	mg/L	4/18/05	4/21/05
6010B	Iron (Fe)	1710 E	0.1	0.0258	mg/L	4/18/05	4/20/05
6010B	Magnesium (Mg)	2490	500	1.3	mg/L	4/18/05	4/21/05
6010B	Magnesium (Mg)	1710 E	5	0.0129	mg/L	4/18/05	4/20/05
6010B	Potassium (K)	282	50	1.00	mg/L	4/18/05	4/21/05
6010B	Potassium (K)	300 E	5	0.0995	mg/L	4/18/05	4/20/05
6010B	Sodium (Na)	62.7	25	0.56	mg/L	4/18/05	4/20/05
6010B	Sodium (Na)	69.5 E	5	0.1111	mg/L	4/18/05	4/20/05

E = The reported value exceeds linear range.

Printed: 4/22/05 11:52 22 AM

L-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield  
Sample ID: **86-WOPT-505**  
Sample Collection Date: 4/12/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47099

APPL ID: **AX17320**

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	403	25	0.14	mg/L	4/18/05	4/20/05
6010B	Calcium (Ca)	403 E	5	0.0272	mg/L	4/18/05	4/20/05
6010B	Iron (Fe)	50.8	0.50	0.13	mg/L	4/18/05	4/20/05
6010B	Iron (Fe)	47.6 E	0.1	0.0258	mg/L	4/18/05	4/20/05
6010B	Magnesium (Mg)	116	25	0.065	mg/L	4/18/05	4/20/05
6010B	Magnesium (Mg)	115 E	5	0.0129	mg/L	4/18/05	4/20/05
6010B	Potassium (K)	10.8	5	0.0995	mg/L	4/18/05	4/20/05
6010B	Sodium (Na)	42.5	5	0.1111	mg/L	4/18/05	4/20/05

E = The reported value exceeds linear range.

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<sup>2</sup>L-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-506

Sample Collection Date: 4/12/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47099

APPL ID: AX17321

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	442	25	0.14	mg/L	4/18/05	4/20/05
6010B	Calcium (Ca)	445 E	5	0.0272	mg/L	4/18/05	4/20/05
6010B	Iron (Fe)	10.5	0.1	0.0258	mg/L	4/18/05	4/20/05
6010B	Magnesium (Mg)	76.7	5	0.0129	mg/L	4/18/05	4/20/05
6010B	Potassium (K)	11.9	5	0.0995	mg/L	4/18/05	4/20/05
6010B	Sodium (Na)	38.9	5	0.1111	mg/L	4/18/05	4/20/05

E = The reported value exceeds linear range.

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P:\F1-SC-MCRes\MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1000

Sample Collection Date: 4/12/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47099

APPL ID: AX17330

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	341	25	0.14	mg/L	4/18/05	4/20/05
6010B	Calcium (Ca)	348 E	5	0.0272	mg/L	4/18/05	4/20/05
6010B	Iron (Fe)	18.5	0.1	0.0258	mg/L	4/18/05	4/20/05
6010B	Magnesium (Mg)	110	25	0.065	mg/L	4/18/05	4/20/05
6010B	Magnesium (Mg)	112 E	5	0.0129	mg/L	4/18/05	4/20/05
6010B	Potassium (K)	11.6	5	0.0995	mg/L	4/18/05	4/20/05
6010B	Sodium (Na)	48.4	5	0.1111	mg/L	4/18/05	4/20/05

E = The reported value exceeds linear range.

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2L-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1001

Sample Collection Date: 4/12/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47099

APPL ID: AX17331

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	254	25	0.14	mg/L	4/18/05	4/20/05
6010B	Calcium (Ca)	265 E	5	0.0272	mg/L	4/18/05	4/20/05
6010B	Iron (Fe)	55.0	0.50	0.13	mg/L	4/18/05	4/20/05
6010B	Iron (Fe)	52.9 E	0.1	0.0258	mg/L	4/18/05	4/20/05
6010B	Magnesium (Mg)	80.2	5	0.0129	mg/L	4/18/05	4/20/05
6010B	Potassium (K)	9.4	5	0.0995	mg/L	4/18/05	4/20/05
6010B	Sodium (Na)	41.4	5	0.1111	mg/L	4/18/05	4/20/05

E = The reported value exceeds linear range.

Printed: 4/22/05 11:52:22 AM

2L-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1003

Sample Collection Date: 4/12/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47099

APPL ID: AX17333

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	195	25	0.14	mg/L	4/18/05	4/20/05
6010B	Calcium (Ca)	201 E	5	0.0272	mg/L	4/18/05	4/20/05
6010B	Iron (Fe)	15.9	0.1	0.0258	mg/L	4/18/05	4/20/05
6010B	Magnesium (Mg)	68.2	5	0.0129	mg/L	4/18/05	4/20/05
6010B	Potassium (K)	14.7	5	0.0995	mg/L	4/18/05	4/20/05
6010B	Sodium (Na)	41.9	5	0.1111	mg/L	4/18/05	4/20/05

E = The reported value exceeds linear range.

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2L-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
194C E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Blenkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1004

Sample Collection Date: 4/12/05

ARF: 47099

APPL ID: AX17334

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	435	25	0.14	mg/L	4/18/05	4/20/05
6010B	Calcium (Ca)	444 E	5	0.0272	mg/L	4/18/05	4/20/05
6010B	Iron (Fe)	23.1	0.1	0.0258	mg/L	4/18/05	4/20/05
6010B	Magnesium (Mg)	103	25	0.065	mg/L	4/18/05	4/20/05
6010B	Magnesium (Mg)	104 E	5	0.0129	mg/L	4/18/05	4/20/05
6010B	Potassium (K)	9.6	5	0.0995	mg/L	4/18/05	4/20/05
6010B	Sodium (Na)	45.5	5	0.1111	mg/L	4/18/05	4/20/05

E = The reported value exceeds linear range.

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1005

Sample Collection Date: 4/12/05

ARF: 47099

APPL ID: AX17335

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	206	25	0.14	mg/L	4/18/05	4/20/05
6010B	Calcium (Ca)	208 E	5	0.0272	mg/L	4/18/05	4/20/05
6010B	Iron (Fe)	9.4	0.1	0.0258	mg/L	4/18/05	4/20/05
6010B	Magnesium (Mg)	63.6	5	0.0129	mg/L	4/18/05	4/20/05
6010B	Potassium (K)	4.8 J	5	0.0995	mg/L	4/18/05	4/20/05
6010B	Sodium (Na)	35.0	5	0.1111	mg/L	4/18/05	4/20/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

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PL-F1-SC-MCRes/MCPQL-REG MDLs



## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1006

Sample Collection Date: 4/12/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47099

APPL ID: AX17336

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	225	25	0.14	mg/L	4/18/05	4/20/05
6010B	Calcium (Ca)	222 E	5	0.0272	mg/L	4/18/05	4/20/05
6010B	Iron (Fe)	17.4	0.1	0.0258	mg/L	4/18/05	4/20/05
6010B	Magnesium (Mg)	62.9	5	0.0129	mg/L	4/18/05	4/20/05
6010B	Potassium (K)	6.1	5	0.0995	mg/L	4/18/05	4/20/05
6010B	Sodium (Na)	36.9	5	0.1111	mg/L	4/18/05	4/20/05

E = The reported value exceeds linear range.

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PL-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield  
Sample ID: 86-WOPT-1007  
Sample Collection Date: 4/12/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47099  
APPL ID: AX17337

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	660	50	0.27	mg/L	4/18/05	4/21/05
6010B	Calcium (Ca)	581 E	5	0.0272	mg/L	4/18/05	4/20/05
6010B	Iron (Fe)	10.8	0.1	0.0258	mg/L	4/18/05	4/20/05
6010B	Magnesium (Mg)	127	25	0.065	mg/L	4/18/05	4/20/05
6010B	Magnesium (Mg)	121 E	5	0.0129	mg/L	4/18/05	4/20/05
6010B	Potassium (K)	11.7	5	0.0995	mg/L	4/18/05	4/20/05
6010B	Sodium (Na)	41.0	5	0.1111	mg/L	4/18/05	4/20/05

E = The reported value exceeds linear range.

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-500

Sample Collection Date: 4/12/05

APPL ID: AX17315

ARF: 47099

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	47500	1000	80	ug/L	4/13/05	4/13/05
EPA 300.0	Nitrate	6660	200	15	ug/L	4/13/05	4/13/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/13/05	4/13/05
EPA 300.0	Sulfate	463000 E	1000	90	ug/L	4/13/05	4/13/05
EPA 300.0	Sulfate	374000	10000	900	ug/L	4/14/05	4/14/05
EPA 310.1	Bicarbonate	399	5	0.787	mg/L	4/15/05	4/15/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/15/05	4/15/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-502

Sample Collection Date: 4/12/05

APPL ID: AX17317

ARF: 47099

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	44200	1000	80	ug/L	4/13/05	4/13/05
EPA 300.0	Nitrate	580 J	200	15	ug/L	4/13/05	4/13/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/13/05	4/13/05
EPA 300.0	Sulfate	316000 E	1000	90	ug/L	4/13/05	4/13/05
EPA 300.0	Sulfate	270000	5000	450	ug/L	4/14/05	4/14/05
EPA 310.1	Bicarbonate	445	5	0.787	mg/L	4/15/05	4/15/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/15/05	4/15/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MOLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Blenkowski

Project: 1890.088D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-503

Sample Collection Date: 4/12/05

APPL ID: AX17318

ARF: 47099

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	44200	1000	80	ug/L	4/13/05	4/13/05
EPA 300.0	Nitrate	545 J	200	15	ug/L	4/13/05	4/13/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/13/05	4/13/05
EPA 300.0	Sulfate	315000 E	1000	90	ug/L	4/13/05	4/13/05
EPA 300.0	Sulfate	265000	5000	450	ug/L	4/14/05	4/14/05
EPA 310.1	Bicarbonate	447	5	0.787	mg/L	4/15/05	4/15/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/15/05	4/15/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-504

Sample Collection Date: 4/12/05

APPL ID: AX17319

ARF: 47099

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	42200	1000	80	ug/L	4/13/05	4/13/05
EPA 300.0	Nitrate	6230	200	15	ug/L	4/13/05	4/13/05
EPA 300.0	Nitrite	953	100	33	ug/L	4/13/05	4/13/05
EPA 300.0	Sulfate	429000 E	1000	90	ug/L	4/13/05	4/13/05
EPA 300.0	Sulfate	350000	10000	900	ug/L	4/14/05	4/14/05
EPA 310.1	Bicarbonate	335	5	0.787	mg/L	4/15/05	4/15/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/15/05	4/15/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-505

Sample Collection Date: 4/12/05

APPL ID: AX17320

ARF: 47099

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	41200	1000	80	ug/L	4/13/05	4/13/05
EPA 300.0	Nitrate	6620	200	15	ug/L	4/13/05	4/13/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/13/05	4/13/05
EPA 300.0	Sulfate	433000 E	1000	90	ug/L	4/13/05	4/13/05
EPA 300.0	Sulfate	354000	10000	900	ug/L	4/14/05	4/14/05
EPA 310.1	Bicarbonate	352	5	0.787	mg/L	4/15/05	4/15/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/15/05	4/15/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-506

Sample Collection Date: 4/12/05

APPL ID: AX17321

ARF: 47099

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	37700	1000	80	ug/L	4/13/05	4/13/05
EPA 300.0	Nitrate	8080	200	15	ug/L	4/13/05	4/13/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/13/05	4/13/05
EPA 300.0	Sulfate	177000 E	1000	90	ug/L	4/13/05	4/13/05
EPA 300.0	Sulfate	153000	5000	450	ug/L	4/14/05	4/14/05
EPA 310.1	Bicarbonate	279	5	0.787	mg/L	4/15/05	4/15/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/15/05	4/15/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs



## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-514

Sample Collection Date: 4/12/05

APPL ID: AX17329

ARF: 47099

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
SW846 9060	Total Organic Carbon	2.0	0.5	0.129	mg/L	4/20/05	4/20/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1000

Sample Collection Date: 4/12/05

APPL ID: AX17330

ARF: 47099

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	51700	1000	80	ug/L	4/13/05	4/13/05
EPA 300.0	Nitrate	3900	200	15	ug/L	4/13/05	4/13/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/13/05	4/13/05
EPA 300.0	Sulfate	522000 E	1000	90	ug/L	4/13/05	4/13/05
EPA 300.0	Sulfate	419000	10000	900	ug/L	4/14/05	4/14/05
EPA 310.1	Bicarbonate	418	5	0.787	mg/L	4/15/05	4/15/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/15/05	4/15/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 98 Moffett Airfield

Sample ID: 86-WOPT-1001

Sample Collection Date: 4/12/05

APPL ID: AX17331

ARF: 47099

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	53800	1000	80	ug/L	4/13/05	4/13/05
EPA 300.0	Nitrate	4120	200	15	ug/L	4/13/05	4/13/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/13/05	4/13/05
EPA 300.0	Sulfate	354000 E	1000	90	ug/L	4/13/05	4/13/05
EPA 300.0	Sulfate	303000	5000	450	ug/L	4/14/05	4/14/05
EPA 310.1	Bicarbonate	430	5	0.787	mg/L	4/15/05	4/15/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/15/05	4/15/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 88-WOPT-1003

Sample Collection Date: 4/12/05

APPL ID: AX17333

ARF. 47099

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	53900	1000	80	ug/L	4/13/05	4/13/05
EPA 300.0	Nitrate	447 J	200	15	ug/L	4/13/05	4/13/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/13/05	4/13/05
EPA 300.0	Sulfate	357000 E	1000	90	ug/L	4/13/05	4/13/05
EPA 300.0	Sulfate	305000	5000	450	ug/L	4/14/05	4/14/05
EPA 310.1	Bicarbonate	433	5	0.787	mg/L	4/15/05	4/15/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/15/05	4/15/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1004

Sample Collection Date: 4/12/05

APPL ID: AX17334

ARF: 47099

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	44200	1000	80	ug/L	4/13/05	4/13/05
EPA 300.0	Nitrate	6930	200	15	ug/L	4/13/05	4/13/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/13/05	4/13/05
EPA 300.0	Sulfate	306000 E	1000	90	ug/L	4/13/05	4/13/05
EPA 300.0	Sulfate	260000	5000	450	ug/L	4/14/05	4/14/05
EPA 310.1	Bicarbonate	429	5	0.787	mg/L	4/15/05	4/15/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/15/05	4/15/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Blenkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1005

Sample Collection Date: 4/12/05

APPL ID: AX17335

ARF: 47099

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	42900	1000	80	ug/L	4/13/05	4/13/05
EPA 300.0	Nitrate	5040	200	15	ug/L	4/13/05	4/13/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/13/05	4/13/05
EPA 300.0	Sulfate	355000 E	1000	90	ug/L	4/13/05	4/13/05
EPA 300.0	Sulfate	303000	5000	450	ug/L	4/14/05	4/14/05
EPA 310.1	Bicarbonate	288	5	0.787	mg/L	4/15/05	4/15/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/15/05	4/15/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Brienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1006

Sample Collection Date: 4/12/05

APPL ID: AX17336

ARF: 47099

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	40100	1000	80	ug/L	4/13/05	4/13/05
EPA 300.0	Nitrate	7060	200	15	ug/L	4/13/05	4/13/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/13/05	4/13/05
EPA 300.0	Sulfate	329000 E	1000	90	ug/L	4/13/05	4/13/05
EPA 306.0	Sulfate	277000	5000	450	ug/L	4/14/05	4/14/05
EPA 310.1	Bicarbonate	328	5	0.787	mg/L	4/15/05	4/15/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/15/05	4/15/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lise Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1007

Sample Collection Date: 4/12/05

APPL ID: AX17337

ARF: 47099

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	37700	1000	80	ug/L	4/13/05	4/13/05
EPA 300.0	Nitrate	8270	200	15	ug/L	4/13/05	4/13/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/13/05	4/13/05
EPA 300.0	Sulfate	162000 E	1000	90	ug/L	4/13/05	4/13/05
EPA 300.0	Sulfate	144000	10000	900	ug/L	4/14/05	4/14/05
EPA 310.1	Bicarbonate	269	5	0.787	mg/L	4/15/05	4/15/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/15/05	4/15/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs



## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1015

Sample Collection Date: 4/12/05

APPL ID: AX17345

ARF: 47099

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
SW846 9050	Total Organic Carbon	2.7	0.5	0.129	mg/L	4/20/05	4/20/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

April 25, 2005

Service Request No: K2502713

Robert Wise  
APPL, Inc.  
4203 W. Swift Avenue  
Fresno, CA 93722

**RE: 47099**

Dear Robert:

Enclosed are the results of the sample(s) submitted to our laboratory on April 14, 2005. For your reference, these analyses have been assigned our service request number K2502713.

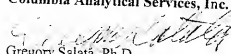
All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAC standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3376.

Respectfully submitted,

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Columbia Analytical Services, Inc.



Gregory Salata, Ph.D.  
Project Chemist

GS/jeb

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COLUMBIA ANALYTICAL SERVICES, INC.

Client: Agriculture & Priority Pollutants Labs  
Project: 47099  
Sample Matrix: Soil

Service Request No.: K2502713  
Date Received: 04/14/05

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier III validation deliverables including summary forms and all of the associated raw data for each of the analyses. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Fourteen soil samples were received for analysis at Columbia Analytical Services on 04/14/05. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

General Chemistry Parameters

No anomalies associated with the analysis of these samples were observed.

Approved by

Date

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## COLUMBIA ANALYTICAL SERVICES, INC.

## Analytical Report

Client : Agriculture & Priority Pollutants Labs  
 Project Name : NA  
 Project Number : 47099  
 Sample Matrix : SOIL

Service Request : K2502713  
 Date Collected : 04/12/05  
 Date Received : 04/14/05

## Carbon, Total Organic

Analysis Method : Walkley-Black  
 Test Notes

Units : mg/Kg (ppm)  
 Basis : Dry

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
86-WOPT-507	K2502713-001	2000	900	1	04/22/05	3110	
86-WOPT-508	K2502713-002	2000	900	1	04/22/05	7060	
86-WOPT-509	K2502713-003	2000	900	1	04/22/05	1730	J
86-WOPT-510	K2502713-004	2000	900	1	04/22/05	ND	
86-WOPT-511	K2502713-005	2000	900	1	04/22/05	ND	
86-WOPT-512	K2502713-006	2000	900	1	04/22/05	1250	J
86-WOPT-513	K2502713-007	2000	900	1	04/22/05	ND	
86-WOPT-1008	K2502713-008	2000	900	1	04/22/05	2600	
86-WOPT-1009	K2502713-009	2000	900	1	04/22/05	3540	
86-WOPT-1010	K2502713-010	2000	900	1	04/22/05	2050	
86-WOPT-1011	K2502713-011	2000	900	1	04/22/05	1990	J
86-WOPT-1012	K2502713-012	2000	900	1	04/22/05	1180	J
86-WOPT-1013	K2502713-013	2000	900	1	04/22/05	ND	
86-WOPT-1014	K2502713-014	2000	900	1	04/22/05	ND	
Method Blank	K2502713-MB	2000	900	1	04/22/05	ND	

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## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Moffett Air Field, Building 88, CTO 86

**Collection Date:** April 12, 2005

**LDC Report Date:** May 25, 2005

**Matrix:** Soil/Water

**Parameters:** Wet Chemistry

**Validation Level:** EPA Level III & IV

**Laboratory:** APPL, Inc./Columbia Analytical Services, Inc.

**Sample Delivery Group (SDG):** 47099/K2502713

### Sample Identification

86-WOPT-500**	86-WOPT-1000	86-WOPT-1014
86-WOPT-500DL**	86-WOPT-1000DL	86-WOPT-1015
86-WOPT-502	86-WOPT-1001**	86-WOPT-507DUP
86-WOPT-502DL	86-WOPT-1001DL**	86-WOPT-1006MS
86-WOPT-503	86-WOPT-1003	86-WOPT-1006MSD
86-WOPT-503DL	86-WOPT-1003DL	
86-WOPT-504	86-WOPT-1004	
86-WOPT-504DL	86-WOPT-1004DL	
86-WOPT-505**	86-WOPT-1005	
86-WOPT-505DL**	86-WOPT-1005DL	
86-WOPT-506	86-WOPT-1006	
86-WOPT-506DL	86-WOPT-1006DL	
86-WOPT-507	86-WOPT-1007**	
86-WOPT-508	86-WOPT-1007DL**	
86-WOPT-509	86-WOPT-1008	
86-WOPT-510**	86-WOPT-1009*	
86-WOPT-511	86-WOPT-1010	
86-WOPT-512	86-WOPT-1011	
86-WOPT-513	86-WOPT-1012	
86-WOPT-514	86-WOPT-1013	

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 15 soil samples and 30 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 300.0 for Chloride, Nitrate, Nitrite, and Sulfate, EPA Method 310.1 for Carbonate and Bicarbonate, and Walkley-Black method and EPA SW 846 Method 9060 for Total Organic Carbon.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section IX.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

### a. Initial Calibration

All criteria for the initial calibration of each method were met.

### b. Calibration Verification

Calibration verification frequency and analysis criteria were met for each method when applicable.

## III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the method blanks with the following exceptions:

Method Blank ID	Analyte	Concentration	Associated Samples
ICB/CCB	Chloride	2.02 mg/L	86-WOPT-500** 86-WOPT-502 86-WOPT-503 86-WOPT-504 86-WOPT-505**

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater ( >5X blank contaminants) than the concentrations found in the associated method blanks.

## IV. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Sample)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
86-WOPT-1006MS/MSD 86-WOPT-500** 86-WOPT-500DL** 86-WOPT-502 86-WOPT-502DL 86-WOPT-503 86-WOPT-503DL 86-WOPT-504 86-WOPT-504DL 86-WOPT-505** 86-WOPT-505DL** 86-WOPT-506 86-WOPT-506DL 86-WOPT-1000 86-WOPT-1000DL 86-WOPT-1001** 86-WOPT-1001DL** 86-WOPT-1003 86-WOPT-1003DL 86-WOPT-1004 86-WOPT-1004DL 86-WOPT-1005 86-WOPT-1005DL 86-WOPT-1006 86-WOPT-1006DL 86-WOPT-1007** 86-WOPT-1007DL**)	Sulfate	67.0 (80-120)	-	-	J (all detects) UJ (all non-detects)	A

## V. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## VI. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## VII. Sample Result Verification

All sample result verification met validation criteria with the following exceptions:



Sample	Analyte	Finding	Criteria	Flag	A or P
86-WOPT-500** 86-WOPT-502 86-WOPT-503 86-WOPT-504 86-WOPT-505** 86-WOPT-506 86-WOPT-1000 86-WOPT-1001** 86-WOPT-1003 86-WOPT-1004 86-WOPT-1005 86-WOPT-1006 86-WOPT-1007**	Sulfate	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	A

Raw data were not evaluated for the samples reviewed by Level III criteria.

### VIII. Overall Assessment of Data

Data flags are summarized at the end of this report.

### IX. Field Duplicates

Samples 86-WOPT-502 and 86-WOPT-503, samples 86-WOPT-502DL and 86-WOPT-503DL, samples 86-WOPT-1001\*\* and 86-WOPT-1003, and samples 86-WOPT-1001DL\*\* and 86-WOPT-1003DL were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration (ug/L)		RPD
	86-WOPT-502	86-WOPT-503	
Chloride	44200	44200	0
Sulfate	316000	315000	0

Analyte	Concentration (mg/L)		RPD
	88-WOPT-502	88-WOPT-503	
Bicarbonate	445	447	0

Analyte	Concentration (ug/L)		RPD
	88-WOPT-502DL	88-WOPT-503DL	
Sulfate	270000	265000	2

Analyte	Concentration (ug/L)		RPD
	86-WOPT-1001**	86-WOPT-1003	
Chloride	53900	53900	0
Nitrate	4120	200U	Not calculable
Sulfate	354000	357000	1

Analyte	Concentration (mg/L)		RPD
	86-WOPT-1001**	86-WOPT-1003	
Bicarbonate	430	433	1

Analyte	Concentration (ug/L)		RPD
	86-WOPT-1001DL**	86-WOPT-1003DL	
Sulfate	303000	305000	1

## X. Field Blanks

Samples 86-WOPT-514 and 86-WOPT-1015 were identified as equipment rinsates. No contaminant concentrations were found in these blanks with the following exceptions:

Equipment Rinsate ID	Analyte	Concentration (mg/L)
86-WOPT-514	Total organic carbon	2.0
86-WOPT-1015	Total organic carbon	2.7

**Moffett Air Field, Building 88, CTO 86**

**Wet Chemistry - Data Qualification Summary - SDG 47099/K2502713**

SDG	Sample	Analyte	Flag	A or P	Reason
47099/ K2502713	86-WOPT-500**	Sulfate	J (all detects) JJ (all non-detects)	A	Matrix spike/Matrix spike duplicates (%R)
	86-WOPT-500DL**				
	86-WOPT-502				
	86-WOPT-502DL				
	86-WOPT-503				
	86-WOPT-503DL				
	86-WOPT-504				
	86-WOPT-504DL				
	86-WOPT-505**				
	86-WOPT-505DL**				
	86-WOPT-506				
	86-WOPT-506DL				
	86-WOPT-1000				
	86-WOPT-1000DL				
	86-WOPT-1001**				
	86-WOPT-1001DL**				
	86-WOPT-1003				
	86-WOPT-1003DL				
	86-WOPT-1004				
	86-WOPT-1004DL				
	86-WOPT-1005				
	86-WOPT-1005DL				
	86-WOPT-1006				
	86-WOPT-1006DL				
	86-WOPT-1007**				
	86-WOPT-1007DL**				
47099/ K2502713	86-WOPT-500**	Sulfate	J (all detects)	A	Sample result verification
	86-WOPT-502				
	86-WOPT-503				
	86-WOPT-504				
	86-WOPT-505**				
	86-WOPT-506				
	86-WOPT-1000				
	86-WOPT-1001**				
	86-WOPT-1003				
	86-WOPT-1004				
	86-WOPT-1005				
	86-WOPT-1006				
	86-WOPT-1007**				

**Moffett Air Field, Building 88, CTO 86**

**Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 47099/K2502713**

No Sample Data Qualified in this SDG

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Moffett Air Field, Building 88, CTO 86

**Collection Date:** April 12, 2005

**LDC Report Date:** May 24, 2005

**Matrix:** Water

**Parameters:** Metals

**Validation Level:** EPA Level III & IV

**Laboratory:** APPL, Inc.

**Sample Delivery Group (SDG):** 47099

### Sample Identification

86-WOPT-500**	86-WOPT-1005
86-WOPT-500DL**	86-WOPT-1005DL
86-WOPT-502	86-WOPT-1006
86-WOPT-502DL	86-WOPT-1006DL
86-WOPT-503	86-WOPT-1007**
86-WOPT-503DL	86-WOPT-1007DL**
86-WOPT-504	86-WOPT-1006MS
86-WOPT-504DL	86-WOPT-1006MSD
86-WOPT-505**	
86-WOPT-505DL**	
86-WOPT-506	
86-WOPT-506DL	
86-WOPT-1000	
86-WOPT-1000DL	
86-WOPT-1001**	
86-WOPT-1001DL**	
86-WOPT-1003	
86-WOPT-1003DL	
86-WOPT-1004	
86-WOPT-1004DL	

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 28 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 6010B for Metals. The metals analyzed were Calcium, Iron, Magnesium, Potassium, and Sodium.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

## III. Blanks

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Calcium Sodium	0.054 mg/L 0.25 mg/L	All samples in SDG 47099

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or were significantly greater ( >5X blank contaminants) than the concentrations found in the associated method blanks.

## IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

## V. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
86-WOPT-1006MS/MSD (86-WOPT-500** 86-WOPT-502 86-WOPT-502DL 86-WOPT-503 86-WOPT-503DL 86-WOPT-504 86-WOPT-504DL 86-WOPT-505** 86-WOPT-505DL** 86-WOPT-506 86-WOPT-1000 86-WOPT-1001** 86-WOPT-1001DL** 86-WOPT-1003 86-WOPT-1004 86-WOPT-1005 86-WOPT-1006 86-WOPT-1007**)	Iron	-	-	47 ( $\leq 20$ )	J (all detects) UJ (all non-detects)	A
86-WOPT-1006MS/MSD (86-WOPT-500** 86-WOPT-502 86-WOPT-502DL 86-WOPT-503 86-WOPT-503DL 86-WOPT-504 86-WOPT-504DL 86-WOPT-505** 86-WOPT-505DL** 86-WOPT-506 86-WOPT-1000 86-WOPT-1000DL 86-WOPT-1001** 86-WOPT-1003 86-WOPT-1004 86-WOPT-1004DL 86-WOPT-1005 86-WOPT-1006 86-WOPT-1007** 86-WOPT-1007DL**)	Magnesium	-	147 (80-120)	-	J (all detects)	A

## VI. Duplicate Sample Analysis

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

## VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

### VIII. Internal Standards

ICP-MS was not utilized in this SDG.

### IX. Furnace Atomic Absorption QC

Graphite furnace atomic absorption was not utilized in this SDG.

### X. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met.

### XI. Sample Result Verification

All sample result verification met validation criteria with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
86-WOPT-500** 86-WOPT-506 86-WOPT-1003 86-WOPT-1005 86-WOPT-1006	Calcium	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	A
86-WOPT-502 86-WOPT-503 86-WOPT-505**	Calcium Iron Magnesium	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects) J (all detects)	A
86-WOPT-504	Calcium Iron Magnesium Potassium Sodium	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects) J (all detects) J (all detects) J (all detects)	A
86-WOPT-1000 86-WOPT-1004 86-WOPT-1007**	Calcium Magnesium	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects)	A
86-WOPT-1001**	Calcium Iron	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects)	A

Raw data were not evaluated for samples reviewed by Level III criteria.

### XII. Overall Assessment of Data

Data flags have been summarized at the end of this report.



### XIII. Field Duplicates

Samples 86-WOPT-502 and 86-WOPT-503, samples 86-WOPT-502DL and 86-WOPT-503DL, samples 86-WOPT-1001\*\* and 86-WOPT-1003, samples 86-WOPT-1001DL\*\* and 86-WOPT-1003DL, and samples 86-WOPT-1001DL\*\* and 86-WOPT-1003 were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:

Compound	Concentration (mg/L)		RPD
	86-WOPT-502	86-WOPT-503	
Calcium	1300	565	79
Iron	142	93.8	41
Magnesium	137	100	31
Potassium	6.2	6.2	0
Sodium	45.1	43.1	5

Compound	Concentration (mg/L)		RPD
	86-WOPT-502DL	86-WOPT-503DL	
Calcium	1430	606	81
Iron	156	99.6	44
Magnesium	138	99.0	33

Compound	Concentration (mg/L)		RPD
	86-WOPT-1001**	86-WOPT-1003	
Calcium	265	201	27
Iron	52.9	15.9	108
Magnesium	80.2	68.2	16
Potassium	9.4	14.7	44
Sodium	41.4	41.9	1

Compound	Concentration (mg/L)		RPD
	88-WOPT-1001DL**	86-WOPT-1003DL	
Calcium	254	195	26

Compound	Concentration (mg/L)		RPD
	86-WOPT-1001DL**	86-WOPT-1003	
Iron	55.0	15.9	110

#### XIV. Field Blanks

No field blanks were identified in this SDG.

**Moffett Air Field, Building 88, CTO 86**  
**Metals - Data Qualification Summary - SDG 47099**

SDG	Sample	Analyte	Flag	A or P	Reason
47099	86-WOPT-500** 86-WOPT-502 86-WOPT-502DL 86-WOPT-503 86-WOPT-503DL 86-WOPT-504 86-WOPT-504DL 86-WOPT-505** 86-WOPT-505DL** 86-WOPT-506 86-WOPT-1000 86-WOPT-1001** 86-WOPT-1001DL** 86-WOPT-1003 86-WOPT-1004 86-WOPT-1005 86-WOPT-1006 86-WOPT-1007**	Iron	J (all detects) UJ (all non-detects)	A	Matrix spike; Matrix spike duplicates (RPD)
47099	86-WOPT-500** 86-WOPT-502 86-WOPT-502DL 86-WOPT-503 86-WOPT-503DL 86-WOPT-504 86-WOPT-504DL 86-WOPT-505** 86-WOPT-505DL** 86-WOPT-506 86-WOPT-1000 86-WOPT-1000DL 86-WOPT-1001** 86-WOPT-1003 86-WOPT-1004 86-WOPT-1004DL 86-WOPT-1005 86-WOPT-1006 86-WOPT-1007** 86-WOPT-1007DL**	Magnesium	J (all detects)	A	Matrix spike; Matrix spike duplicates (%R)
47099	86-WOPT-500** 86-WOPT-506 86-WOPT-1003 86-WOPT-1005 86-WOPT-1006	Calcium	J (all detects)	A	Sample result verification
47099	86-WOPT-502 86-WOPT-503 86-WOPT-505**	Calcium Iron Magnesium	J (all detects) J (all detects) J (all detects)	A	Sample result verification

SDG	Sample	Analyte	Flag	A or P	Reason
47099	86-WOPT-504	Calcium Iron Magnesium Potassium Sodium	J (all detects) J (all detects) J (all detects) J (all detects) J (all detects)	A	Sample result verification
47099	86-WOPT-1000 86-WOPT-1004 86-WOPT-1007**	Calcium Magnesium	J (all detects) J (all detects)	A	Sample result verification
47099	86-WOPT-1001**	Calcium Iron	J (all detects) J (all detects)	A	Sample result verification

**Moffett Air Field, Building 88, CTO 86**

**Metals - Laboratory Blank Data Qualification Summary - SDG 47099**

**No Sample Data Qualified in this SDG**

**Laboratory Data Consultants, Inc.**  
**Data Validation Report**

**Project/Site Name:** Moffett Air Field, Building 88, CTO 86  
**Collection Date:** April 12, 2005  
**LDC Report Date:** May 26, 2005  
**Matrix:** Water  
**Parameters:** Volatiles  
**Validation Level:** EPA Level III & IV  
**Laboratory:** APPL, Inc.  
**Sample Delivery Group (SDG):** 47099

**Sample Identification**

86-WOPT-500**	86-WOPT-1004
86-WOPT-500DL**	86-WOPT-1004DL
86-WOPT-501	86-WOPT-1005
86-WOPT-502	86-WOPT-1005DL
86-WOPT-502DL	86-WOPT-1006
86-WOPT-503	86-WOPT-1006DL
86-WOPT-503DL	86-WOPT-1006MS
86-WOPT-504	86-WOPT-1006MSD
86-WOPT-504DL	86-WOPT-1007**
86-WOPT-505**	86-WOPT-1007DL**
86-WOPT-505DL**	
86-WOPT-506	
86-WOPT-506DL	
86-WOPT-1000	
86-WOPT-1000DL	
86-WOPT-1001**	
86-WOPT-1001DL**	
86-WOPT-1002	
86-WOPT-1003	
86-WOPT-1003DL	

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 30 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Contract Laboratory Program Statement of Work (SOW) OLM04.2 for Volatiles.

This review follows USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999); the following subsections correlate to the above guidelines.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 30.0% for all compounds with the following exceptions:

Date	Compound	%RSD	Associated Samples	Flag	A or P
4/12/05	Chloroethane	32	86-WOPT-500**	J (all detects)	A
	Acetone	40	86-WOPT-501 86-WOPT-502 86-WOPT-503 86-WOPT-504 86-WOPT-505** 86-WOPT-506 86-WOPT-1000 86-WOPT-1001** 86-WOPT-1002 86-WOPT-1003 86-WOPT-1004 86-WOPT-1005 86-WOPT-1006 86-WOPT-1006MS 86-WOPT-1006MSD 86-WOPT-1007** 050413W1 050413W2	UJ (all non-detects) J (all detects) UJ (all non-detects)	

Average relative response factors (RRF) for all volatile target compounds and system monitoring compounds were within validation criteria.

## IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 25.0% with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
4/13/05	Bromomethane	26	86-WOPT-1004 86-WOPT-1006	J (all detects) UJ (all non-detects)	A
	Chloroethane	26	86-WOPT-1006MS 86-WOPT-1006MSD 86-WOPT-1007** 050413W2	J (all detects) UJ (all non-detects)	

All of the continuing calibration RRF values were within validation criteria.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Analysis Date	Compound TIC (RT in minutes)	Concentration	Associated Samples
050413W2	4/13/05	cis-1,2-Dichloroethene Trichloroethene	0.29 ug/L 0.22 ug/L	86-WOPT-500DL** 86-WOPT-502DL 86-WOPT-1004 86-WOPT-1006 86-WOPT-1007**
050415W	4/15/05	Trichloroethene	0.21 ug/L	86-WOPT-504DL 86-WOPT-505DL** 86-WOPT-506DL 86-WOPT-1000DL

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated method blanks.

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the SOW. All surrogate recoveries (%R) were within QC limits.

## VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were not within QC limits. Since the sample concentration was greater than the spiked concentration, no data were qualified.



### VIII. Laboratory Control Samples (LCS)

Although laboratory control samples were not required by the method, laboratory control samples were reported by the laboratory. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

### IX. Regional Quality Assurance and Quality Control

Not applicable.

### X. Internal Standards

All internal standard areas and retention times were within QC limits.

### XI. Target Compound Identifications

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

### XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
86-WOPT-500** 86-WOPT-502 86-WOPT-504 86-WOPT-505** 86-WOPT-1006	cis-1,2-Dichloroethene Trichloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects)	A
86-WOPT-503	cis-1,2-Dichloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	A
86-WOPT-506 86-WOPT-1007**	Trichloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	A
86-WOPT-1000 86-WOPT-1001** 86-WOPT-1003 86-WOPT-1004 86-WOPT-1005	cis-1,2-Dichloroethene Tetrachloroethene Trichloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects) J (all detects)	A

Raw data were not evaluated for the samples reviewed by Level III criteria.

### XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

### XIV. System Performance

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

### XV. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### XVI. Field Duplicates

Samples 86-WOPT-502 and 86-WOPT-503, samples 86-WOPT-502DL and 86-WOPT-503DL, samples 86-WOPT-1001\*\* and 86-WOPT-1003, and samples 86-WOPT-1001DL\*\* and 86-WOPT-1003DL were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	86-WOPT-502	86-WOPT-503	
1,1,2-Trichloro-1,2,2-trifluoroethane	1.1	0.73	40
1,1-Dichloroethane	18	16	12
1,1-Dichloroethene	31	23	30
1,2-Dichloropropane	0.51	0.5U	Not calculable
cis-1,2-Dichloroethene	1500	1400	7
Tetrachloroethene	0.22	0.19	15
trans-1,2-Dichloroethene	9.1	6.9	27
Trichloroethene	130	87	40
Vinyl chloride	1.2	0.90	29

Compound	Concentration (ug/L)		RPD
	86-WOPT-502DL	86-WOPT-503DL	
cis-1,2-Dichloroethene	2000	2100	5
Trichloroethene	130	Not reported	Not calculable

Compound	Concentration (ug/L)		RPD
	86-WOPT-1001**	86-WOPT-1003	
1,1-Dichloroethane	16	18	12
1,1-Dichloroethene	32	39	20
cis-1,2-Dichloroethene	2600	2800	7
Tetrachloroethene	330	290	13
trans-1,2-Dichloroethene	23	22	4
Trichloroethene	280	280	0
Vinyl chloride	1.8	2.3	24

Compound	Concentration (ug/L)		RPD
	86-WOPT-1001DL**	86-WOPT-1003DL	
cis-1,2-Dichloroethene	2600	2600	0
Tetrachloroethene	98	70	33
Trichloroethene	97	76	24

## XVII. Field Blanks

Samples 86-WOPT-501 and 86-WOPT-1002 were identified as trip blanks. No volatile contaminants were found in these blanks with the following exceptions:

Trip Blank ID	Compound	Concentration (ug/L)
86-WOPT-501	Methylene chloride	0.51

Trip Blank ID	Compound	Concentration (ug/L)
86-WOPT-1002	Methylene chloride	0.39

**Moffett Air Field, Building 88, CTO 86**  
**Volatiles - Data Qualification Summary - SDG 47099**

SDG	Sample	Compound	Flag	A or P	Reason
47099	86-WOPT-500** 86-WOPT-501 86-WOPT-502 86-WOPT-503 86-WOPT-504 86-WOPT-505** 86-WOPT-506 86-WOPT-1000 86-WOPT-1001** 86-WOPT-1002 86-WOPT-1003 86-WOPT-1004 86-WOPT-1005 86-WOPT-1006 86-WOPT-1007**	Chloroethane  Acetone	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Initial calibration (%RSD)
47099	86-WOPT-1004 86-WOPT-1006 86-WOPT-1007**	Bromomethane  Chloroethane	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
47099	86-WOPT-500** 86-WOPT-502 86-WOPT-504 86-WOPT-505** 86-WOPT-1006	cis-1,2-Dichloroethene Trichloroethene	J (all detects) J (all detects)	A	Compound quantitation and CROLS
47099	86-WOPT-503	cis-1,2-Dichloroethene	J (all detects)	A	Compound quantitation and CROLS
47099	86-WOPT-506 86-WOPT-1007**	Trichloroethene	J (all detects)	A	Compound quantitation and CROLS
47099	86-WOPT-1000 86-WOPT-1001** 86-WOPT-1003 86-WOPT-1004 86-WOPT-1005	cis-1,2-Dichloroethene Tetrachloroethene Trichloroethene	J (all detects) J (all detects) J (all detects)	A	Compound quantitation and CROLS

**Moffett Air Field, Building 88, CTO 86**  
**Volatiles - Laboratory Blank Data Qualification Summary - SDG 47099**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Air Field, Building 88, CTO 86  
**Collection Date:** April 12, 2005  
**LDC Report Date:** May 31, 2005  
**Matrix:** Soil/Water  
**Parameters:** Volatiles  
**Validation Level:** EPA Level III & IV  
**Laboratory:** APPL, Inc.

**Sample Delivery Group (SDG):** 47099

**Sample Identification**

86-WOPT-507  
86-WOPT-508  
86-WOPT-509  
86-WOPT-510\*\*  
86-WOPT-511  
86-WOPT-512  
86-WOPT-513  
86-WOPT-514  
86-WOPT-1008  
86-WOPT-1008DL  
86-WOPT-1009\*\*  
86-WOPT-1009DL\*\*  
86-WOPT-1010  
86-WOPT-1011  
86-WOPT-1012  
86-WOPT-1013  
86-WOPT-1014  
86-WOPT-1015

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 16 soil samples and 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals with the following exceptions:

Sample	Compound	Total Time From BFB Tuning Until Analysis	Required Analysis Time (in Hours) From BFB Tuning Until Analysis	Flag	A or P
86-WOPT-1013	All TCL compounds	12 hrs. 35 mins.	12 hrs.	None	P

All ion abundance requirements were met.

## III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 15.0% for each individual compound and less than or equal to 30.0% for calibration check compounds (CCCs).

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination ( $r^2$ ) was greater than or equal to 0.990 .

Average relative response factors (RRF) for all system performance check compounds (SPCCs) were within method and validation criteria.

## IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 20.0% for all compounds with the following exceptions:



Date	Compound	%D	Associated Samples	Flag	A or P
4/13/05 (0413C02W)	Bromomethane	21	86-WOPT-1014 050413S	J (all detects) UJ (all non-detects)	A
	Acetone	30			
	Carbon disulfide	22			
	Vinyl acetate	24			
	2-Butanone	26			
	2-Hexanone	34			
	4-Methyl-2-pentanone	30			
4/13/05 (0413S01W)	Vinyl acetate	23	All water samples in SDG 47099	J (all detects) UJ (all non-detects)	A
	1,2-Dichloroethane	22			
				J (all detects) UJ (all non-detects)	

All of the continuing calibration RRF values for all system performance check compounds (SPCCs) were within method and validation criteria.

#### V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

#### VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

#### VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

#### VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### IX. Regional Quality Assurance and Quality Control

Not applicable.

#### X. Internal Standards

All internal standard areas and retention times were within QC limits with the following exceptions:

Sample	Internal Standards	Area (Limits)	Compound	Flag	A or P
86-WOPT-1008	1,4-Dichlorobenzene-d4	114352 (147812-591246)	4-Methyl-2-pentanone 1,1,2,2-Tetrachloroethane	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A

#### XI. Target Compound Identifications

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

#### XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
86-WOPT-1008	Trichloroethene Tetrachloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects)	A
86-WOPT-1009**	cis-1,2-Dichloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	A

Raw data were not evaluated for the samples reviewed by Level III criteria.

#### XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

#### XIV. System Performance

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

#### XV. Overall Assessment

Data flags are summarized at the end of this report if data has been qualified.

#### XVI. Field Duplicates

No field duplicates were identified in this SDG.

## **XVII. Field Blanks**

Samples 86-WOPT-514 and 86-WOPT-1015 were identified as equipment rinsates. No volatile contaminants were found in these blanks.

**Moffett Air Field, Building 88, CTO 86**  
**Volatiles - Data Qualification Summary - SDG 47099**

SDG	Sample	Compound	Flag	A or P	Reason
47099	86-WOPT-1013	All TCL compounds	None	P	GC/MS instrument performance check
47099	86-WOPT-1014	Bromomethane Acetone Carbon disulfide Vinyl acetate 2-Butanone 2-Hexanone 4-Methyl-2-pentanone	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
47099	86-WOPT-514 86-WOPT-1015	Vinyl acetate 1,2-Dichloroethane	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
47099	86-WOPT-1008	4-Methyl-2-pentanone 1,1,2,2-Tetrachloroethane	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Internal standards (area)
47099	86-WOPT-1008	Trichloroethene Tetrachloroethene	J (all detects) J (all detects)	A	Compound quantitation and CRQLs
47099	86-WOPT-1009**	cis-1,2-Dichloroethene	J (all detects)	A	Compound quantitation and CRQLs

**Moffett Air Field, Building 88, CTO 86**  
**Volatiles - Laboratory Blank Data Qualification Summary - SDG 47099**

No Sample Data Qualified in this SDG



**TETRA TECH**  
1234 Columbia Street, Suite 500  
San Diego, CA 92161 (619) 234-6696

# CHAIN-OF-CUSTODY RECORD

NUMBER 10353

PROJECT NAME Building 88		PURCHASE ORDER NO 025432		ANALYSES REQUIRED										LABORATORY NAME APPL		Project Information Section Do not submit to Laboratory					
PROJECT LOCATION Moffett Airfield CA		PROJECT NO 1990.0860												LABORATORY ID (FOR LABORATORY) 49118 K250743 (045)							
SAMPLER NAME Mark Cutler		AIRBILL NUMBER CCL-107																			
PROJECT CONTACT Lynn T. Peterson		PROJECT CONTACT PHONE NUMBER (619) 756-7558																			
SAMPLE ID	DATE COLLECTED	TIME COLLECTED	NO. OF CONTAINERS	LEVEL	T	T	T	T	T	T	T	T	T	T	T	T	LOCATION	DEPTH	QC		
86-WOPT-1022	4/13/05	1044	5	3	5	24	X	X									CPT-88-9	11 12	209		
86-WOPT-1023	4/13/05	1053	5	3	5	24	X	X									CPT-88-9	15 15	209		
86-WOPT-1024	4/13/05	1058	5	3	5	24	X	X									CPT-88-9	23 24	209		
86-WOPT-1025	4/13/05	1107	5	3	5	24	X	X									CPT-88-9	23 24	209		
86-WOPT-1026	4/13/05	1120	5	3	5	24	X	X									CPT-88-9	42 43	209		
86-WOPT-1027	4/13/05	1143	4	3	5	24	X	X									EG Rinsate	-	209		
<div>RELINQUISHED BY (Signature) Mark Cutler</div> <div>DATE 4/13/05</div> <div>TIME 1730</div> <div>COMPANY TETRA TECH</div> <div>RELINQUISHED BY (Signature) [Signature]</div> <div>DATE [Blank]</div> <div>TIME [Blank]</div> <div>COMPANY [Blank]</div> <div>RELINQUISHED BY (Signature) [Blank]</div> <div>DATE [Blank]</div> <div>TIME [Blank]</div> <div>COMPANY [Blank]</div> <div>RELINQUISHED BY (Signature) [Blank]</div> <div>DATE [Blank]</div> <div>TIME [Blank]</div> <div>COMPANY [Blank]</div>																		LABORATORY INSTRUCTIONS/COMMENTS TSC analyses on 10 day TAT		SAMPLING COMMENT: Bldg-88 CPT (soil)	
																		COMPOSITE DESCRIPTION			
																		SAMPLE CONDITION UPON RECEIPT (FOR LABORATORY) TEMPERATURE: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN COOLER SEAL: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN			
																		COMPANY			



**TETRA TECH**  
1220 Columbia Street, Suite 100  
San Diego, CA 92101 (619) 254-5696

# CHAIN-OF-CUSTODY RECORD

NUMBER 10355

PROJECT NAME		PURCHASE ORDER NO.		PROJECT NO.		LABORATORY NAME		ANALYSES REQUIRED		COMMENTS		LOCATION		DEPTH		QC	
BUILDING		PROJECT LOCATION		SAMPLE NAME		PROJECT CONTACT		PROJECT CONTACT PHONE NUMBER		LEVEL		TIME COLLECTED		DATE COLLECTED		NO OF CONTAINERS	
PROJECT NAME		PROJECT LOCATION		PROJECT CONTACT		PROJECT CONTACT PHONE NUMBER		PROJECT CONTACT		LEVEL		TIME COLLECTED		DATE COLLECTED		NO OF CONTAINERS	
Building 88		055432		1940.086D		APPL		APPL		APPL		APPL		APPL		APPL	
Mark Cutler		1940.086D		1940.086D		1940.086D		1940.086D		1940.086D		1940.086D		1940.086D		1940.086D	
Lynn Patterson		1940.086D		1940.086D		1940.086D		1940.086D		1940.086D		1940.086D		1940.086D		1940.086D	
86-WOPT-1016		4/13/05		0854		S		X		X		X		X		X	
86-WOPT-1017		4/13/05		0859		S		X		X		X		X		X	
86-WOPT-1018		4/13/05		0910		S		X		X		X		X		X	
86-WOPT-1019		4/13/05		0914		S		X		X		X		X		X	
86-WOPT-1020		4/13/05		0932		S		X		X		X		X		X	
86-WOPT-1021		4/13/05		1016		S		X		X		X		X		X	
86-WOPT-1028		4/13/05		1311		S		X		X		X		X		X	
86-WOPT-1029		4/13/05		1324		S		X		X		X		X		X	
86-WOPT-1030		4/13/05		1328		S		X		X		X		X		X	
86-WOPT-1031		4/13/05		1414		S		X		X		X		X		X	
86-WOPT-1032		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1033		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1034		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1035		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1036		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1037		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1038		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1039		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1040		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1041		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1042		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1043		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1044		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1045		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1046		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1047		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1048		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1049		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1050		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1051		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1052		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1053		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1054		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1055		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1056		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1057		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1058		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1059		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1060		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1061		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1062		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1063		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1064		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1065		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1066		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1067		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1068		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1069		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1070		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1071		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1072		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1073		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1074		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1075		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1076		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1077		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1078		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1079		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1080		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1081		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1082		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1083		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1084		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1085		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1086		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1087		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1088		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1089		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1090		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1091		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1092		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1093		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1094		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1095		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1096		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1097		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1098		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1099		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1100		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1101		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1102		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1103		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1104		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1105		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1106		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1107		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1108		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1109		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1110		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1111		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1112		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1113		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1114		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1115		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1116		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1117		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1118		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1119		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1120		4/13/05		1437		S		X		X		X		X		X	
86-WOPT-1121		4/13/05		1437		S		X</									

## CHAIN-OF-CUSTODY RECORD

NUMBER 10360

[illegible]



**NUMBER** 10347

**TETRA TECH**  
1234 Columbia Street, Suite 500  
San Diego, CA 92101 (619) 234-3456

White - Laboratory; Pink - Laboratory; Canary - Project File; Manilla - Data Management

0047118-1W



Data Validation Package  
for  
Moffett Air Field, WATS Building 88, CTO 86  
ARF 47118

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## Case Narrative

ARF: 47118

Project: 1990.086D WATS Bldg S8 Moffett Airfield

State Certification Number: CA1312

Results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

### Sample Receipt Information:

The sample group was received April 13, 2005, at 4.0°C and 3.5°C. The samples were assigned Analytical Request Form (ARF) number 47118. The sample numbers and requested analyses were compared to the chains of custody. The soil TOC analysis was sub-contracted to Columbia Analytical Laboratory. No exception was noted.

Sample Table

CLIENT ID	APPL ID	Matrix	Date Sampled	Date Received
86-WOPT-515	AX17464	WATER	4/13/05	4/13/05
86-WOPT-516	AX17465	WATER	4/13/05	4/13/05
86-WOPT-517	AX17466	WATER	4/13/05	4/13/05
86-WOPT-518	AX17467	WATER	4/13/05	4/13/05
86-WOPT-519	AX17468	WATER	4/13/05	4/13/05
86-WOPT-520	AX17469	WATER	4/13/05	4/13/05
86-WOPT-521	AX17470	WATER	4/13/05	4/13/05
86-WOPT-522	AX17471	SOIL	4/13/05	4/13/05
86-WOPT-523	AX17472	SOIL	4/13/05	4/13/05
86-WOPT-524	AX17473	SOIL	4/13/05	4/13/05
86-WOPT-525	AX17474	SOIL	4/13/05	4/13/05
86-WOPT-526	AX17475	SOIL	4/13/05	4/13/05
86-WOPT-527	AX17476	SOIL	4/13/05	4/13/05
86-WOPT-528	AX17477	WATER	4/13/05	4/13/05
86-WOPT-529	AX17478	WATER	4/13/05	4/13/05
86-WOPT-530	AX17479	WATER	4/13/05	4/13/05
86-WOPT-531	AX17480	WATER	4/13/05	4/13/05
86-WOPT-1016	AX17481	WATER	4/13/05	4/13/05
86-WOPT-1017	AX17482	WATER	4/13/05	4/13/05
86-WOPT-1018	AX17483	WATER	4/13/05	4/13/05
86-WOPT-1019	AX17484	WATER	4/13/05	4/13/05
86-WOPT-1020	AX17485	WATER	4/13/05	4/13/05
86-WOPT-1021	AX17486	WATER	4/13/05	4/13/05
86-WOPT-1028	AX17487	WATER	4/13/05	4/13/05
86-WOPT-1029	AX17488	WATER	4/13/05	4/13/05
86-WOPT-1030	AX17489	WATER	4/13/05	4/13/05
86-WOPT-1031	AX17490	WATER	4/13/05	4/13/05

86-WOPT-1022	AX17491	WATER	4/13/05	4/13/05
86-WOPT-1022	AX17492	SOIL	4/13/05	4/13/05
86-WOPT-1023	AX17493	SOIL	4/13/05	4/13/05
86-WOPT-1024	AX17494	SOIL	4/13/05	4/13/05
86-WOPT-1025	AX17495	SOIL	4/13/05	4/13/05
86-WOPT-1026	AX17496	SOIL	4/13/05	4/13/05
86-WOPT-1027	AX17497	WATER	4/13/05	4/13/05

# EPA Method 8260B and CLP Volatiles

## Volatile Organic Analysis

### Sample Preparation:

The water samples were purged according to EPA method 5030B and according to CLP. The soil samples were purged according to EPA method 5035. All holding times were met.

### Sample Analysis Information:

The samples were analyzed according to the methods using a Hewlett Packard Gas Chromatograph with a mass spectrometer detector.

Sample 86-WOPT-523, required a dilution for cis-1,2-Dichloroethene because its response exceeded linear calibration range of the instrument. When the dilution was run, the diluted result for Trichloroethene and Tetrachloroethane were much higher than the initial run. Both compounds are reported on the undiluted form 1 as well as the diluted form 1.

### Quality Control/Assurance

#### Calibrations:

Initial and continuing calibrations were performed according to the method. For the continuing calibration performed on Chico 0413C03, Acetone had a 38%D, 2-Butanone had a 27%D, and 1,1,1-Trichloroethane had a 22%D. For the continuing calibration performed on Chico file ID: 0413C19S.D, Chloromethane had a 22%D and Bromomethane had a 21%D. For the continuing calibration performed on Max file ID: 0413M23W.D, Bromomethane had a 22%D and Acetone had a 23%D. For the continuing calibration performed on Neo file ID: 0413N01W.D, Bromomethane had a 26%D and Chloroethane had a 26%D. For the continuing calibration performed on Neo file ID: 0414N01W.D, Chloromethane had a 31%D, Bromomethane had a 34%D and Chloroethane had a 31%D. All other calibration criteria were met.

#### Blanks:

For the 050413AN method blank, cis-1,2-Dichloroethene and Trichloroethene were detected below the reporting limit but above the MDL at 0.29µg/L and 0.22µg/L respectively. For the 050414AN method blank Trichloroethene was detected below the reporting limit but above the MDL at 0.27µg/L. For the method blank 050420BN, Trichloroethene was detected at 0.52µg/L. All Trichloroethene results were at least ten times the levels in the 050420BN method blank. No other target analyte was detected above the reporting limits in the method blanks.

#### Spikes:

Laboratory Control Spikes (LCS) were used for quality assurance. A second-source standard was used for the LCS. All spike and second-source criteria were met.

MS/MSDs were requested by the client to be performed on samples 86-WOPT-522 and 86-WOPT-1020. For the MS/MSD performed on 86-WOPT-522, 1,1-Dichloroethene recovered below the 65% lower control limit at 27.1% and 36.2%. Chlorobenzene recovered below the 65% lower control limit at 63.0% and 58.0%, and Trichloroethene recovered below the at -1799% and -1605%. For the MS/MSD performed on sample 86-WOPT-1020, Trichloroethene recovered above the 125% upper control limit at 840% and 660%.

**Surrogates**

All surrogate recoveries were within control limits.

**Tuning:**

The instrument was tuned using BFB. All method criteria were met.

**Internal Standards**

The internal standard area counts were compared to the mid-point of the initial calibration according to method 8260. All method criteria were met.

**Summary:**

No additional problem was encountered. All data were acceptable.

# **EPA Methods 6010B**

## **Metals**

### **Digestion Information:**

The water was digested according to EPA methods 3010A. No exceptions were encountered. All holding times were met.

### **Analysis Information:**

#### **Samples:**

The sample was analyzed for metals according to EPA method 6010B using a Perkin Elmer Optima 4300DV.

#### **Calibrations:**

Calibrations were performed according to the methods for the initial calibration and the initial calibration verification. The initial calibration verification is prepared from a second source standard.

#### **Blanks:**

No target metal was detected above the reporting limits in the method blank.

#### **Spikes:**

Laboratory Control Spikes (LCS/LCSD), and Matrix Spikes (MS/MSD) were used for quality assurance. LCS/LCSD recoveries were within acceptance limits. For the MS/MSD on sample 86-WOPT-1020, Calcium recovered above the 120% upper control limit at 328% and 212%, Iron above the 120% upper control limit at 150% and 340%, and Magnesium above the 120% upper control limit in the MSD at 180%. The concentration of Calcium and Iron were greater than ten times the spiking concentration and Magnesium was greater than four times the spiking concentration in the parent sample.

### **Summary:**

No analytical exception is noted. All data are acceptable.

# **EPA Methods 300.0, 310.1 and 9060A**

## **Anions, Carbonates & Bi-carbonates and Total Organic Carbon**

### **Sample Preparation Information:**

A Dionex DX500 ion chromatograph was used for the EPA 300.0 analysis. The TOC was analyzed using a Shimadzu TOC-5050A instrument. The samples were screened down to the MDL.

### **Analysis Information:**

#### **Samples:**

The sample was analyzed according to the methods. A Dionex DX500 ion chromatograph was used for the EPA 300.0 analysis.

#### **Calibrations:**

Calibrations were performed according to the methods for the initial calibration and the initial calibration verification. The initial calibration verification is prepared from a second source standard.

#### **Blanks:**

No target analyte was detected above the reporting limits in the method blanks.

#### **Spikes:**

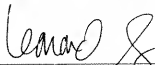
Laboratory Control Spikes (LCS) were used for quality assurance. For the MS/MSD on sample 86-WOPT-1020, Nitrate recovered above the 120% upper control limit at 132% and 122% and Sulfate below the 80% lower control limit at 62.0% in the MSD. Additionally, Bicarbonate matrix spikes were also performed on samples 86-WOPT-516 and 86-WOPT-531.

### **Summary:**

No other analytical exception is noted.

## CERTIFICATION

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the hard copy has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

 5/1/05

Leonard Fong, Ph.D, Laboratory Director / Date



# CLP Volatiles Water

Tetra Tech FW, Inc  
1940 E Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

ARF: 47118

Sample ID: 86-WOPT-515

APPL ID: AX17464

Sample Collection Date: 4/13/05

QCG: SC42VT-050413AN-85651

Method	Analyte	Result	POL	MCL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/13/05	4/13/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	0.5	0.21	ug/L	4/13/05	4/13/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/13/05	4/13/05
CLP VOL	1,1-Dichloroethane	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	1,1-Dichloroethene	Not detected	0.5	0.30	ug/L	4/13/05	4/13/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/13/05	4/13/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/13/05	4/13/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/13/05	4/13/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/13/05	4/13/05
CLP VOL	Acetone	5.1	5	0.95	ug/L	4/13/05	4/13/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/13/05	4/13/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/13/05	4/13/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/13/05	4/13/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/13/05	4/13/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/13/05	4/13/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/13/05	4/13/05
CLP VOL	cis-1,2-Dichloroethene	0.17 J	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/13/05	4/13/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/13/05	4/13/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Methylene Chloride	0.63	0.5	0.35	ug/L	4/13/05	4/13/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/13/05	4/13/05

J = Estimated value, below quantitation limit.

Run #: 0413N13

Instrument: Neo

Sequence: N050412

Dilution Factor: 1

Initials: LF

Printed: 4/20/05 11:08:00 AM  
APPL-F1-SC-MCRES/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-515

Sample Collection Date: 4/13/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47118

APPL ID: AX17464

QCG: SC42VT-050413AN-85651

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	Not detected	0.5	0.15	ug/L	4/13/05	4/13/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/13/05	4/13/05
CLP VOL	trans-1,2-Dichloroethene	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/13/05	4/13/05
CLP VOL	Trichloroethene	0.50	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	Vinyl Chloride	Not detected	0.5	0.23	ug/L	4/13/05	4/13/05
CLP VOL	Surrogate Recovery (BFB)	107	75-125		%	4/13/05	4/13/05
CLP VOL	Surrogate Recovery (DCA)	102	62-139		%	4/13/05	4/13/05
CLP VOL	Surrogate Recovery (TOL)	110	75-125		%	4/13/05	4/13/05

J = Estimated value, below quantitation limit.

Run #: 0413N13  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:08:00 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

ARF: 47118

Sample ID: 86-WOPT-516

APPL ID: AX17465

Sample Collection Date: 4/13/05

OCG: SC42VT-050413AN-85651

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	0.23 J	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/13/05	4/13/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	1.6	0.5	0.21	ug/L	4/13/05	4/13/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/13/05	4/13/05
CLP VOL	1,1-Dichloroethane	19	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	1,1-Dichloroethene	24	0.5	0.30	ug/L	4/13/05	4/13/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	1,2-Dichloropropane	2.4	0.5	0.17	ug/L	4/13/05	4/13/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/13/05	4/13/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/13/05	4/13/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/13/05	4/13/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/13/05	4/13/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/13/05	4/13/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/13/05	4/13/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/13/05	4/13/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/13/05	4/13/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/13/05	4/13/05
CLP VOL	Chloroform	0.19 J	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/13/05	4/13/05
CLP VOL	cis-1,2-Dichloroethene	340 E	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/13/05	4/13/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/13/05	4/13/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/13/05	4/13/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/13/05	4/13/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0413N15  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:08:00 AM  
APPL-F1-SC-MCRos-MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-516

Sample Collection Date: 4/13/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47118

APPL ID: AX17465

QCG: SC42VT-050413AN-85651

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	65	0.5	0.15	ug/L	4/13/05	4/13/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/13/05	4/13/05
CLP VOL	trans-1,2-Dichloroethene	3.8	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/13/05	4/13/05
CLP VOL	Trichloroethene	780 E	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	Vinyl Chloride	0.84	0.5	0.23	ug/L	4/13/05	4/13/05
CLP VOL	Surrogate Recovery (BFB)	104	75-125		%	4/13/05	4/13/05
CLP VOL	Surrogate Recovery (DCA)	95.6	62-139		%	4/13/05	4/13/05
CLP VOL	Surrogate Recovery (TOL)	107	75-125		%	4/13/05	4/13/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0413N15  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:08:00 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990 86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-516

Sample Collection Date: 4/13/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47118

APPL ID: AX17465

QCG: SC42VD-G50417AN-85826

Method	Analyte	Result	FQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	270	12.5	4.00	ug/L	4/18/05	4/18/05
CLP VOL	Trichloroethene	690	12.5	4.00	ug/L	4/18/05	4/18/05
CLP VOL	Surrogate Recovery (BFB)	105	75-125		%	4/18/05	4/18/05
CLP VOL	Surrogate Recovery (DCA)	113	62-139		%	4/18/05	4/18/05
CLP VOL	Surrogate Recovery (TOL)	103	75-125		%	4/18/05	4/18/05

Run #: 0417N13  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 25  
Initials: LF

Printed: 4/20/05 5:10:02 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOFT-517

Sample Collection Date: 4/13/05

ARF: 47118

APPL ID: AX17466

QCG: SC42VT-050413AN-85651

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	0.97	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/13/05	4/13/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	3.2	0.5	0.21	ug/L	4/13/05	4/13/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/13/05	4/13/05
CLP VOL	1,1-Dichloroethane	7.6	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	1,1-Dichloroethene	15	0.5	0.30	ug/L	4/13/05	4/13/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/13/05	4/13/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/13/05	4/13/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/13/05	4/13/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/13/05	4/13/05
CLP VOL	Acetone	1.0 J	5	0.95	ug/L	4/13/05	4/13/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/13/05	4/13/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/13/05	4/13/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/13/05	4/13/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/13/05	4/13/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/13/05	4/13/05
CLP VOL	Chloroform	0.20 J	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/13/05	4/13/05
CLP VOL	cis-1,2-Dichloroethene	720 E	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/13/05	4/13/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/13/05	4/13/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/13/05	4/13/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/13/05	4/13/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0413N16  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:08:00 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Brenkowski  
Project: 199G.86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-517

Sample Collection Date: 4/13/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47118

APPL ID: AX17466

QCG: SC42VT-050413AN-85651

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	56	0.5	0.15	ug/L	4/13/05	4/13/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/13/05	4/13/05
CLP VOL	trans-1,2-Dichloroethene	8.7	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/13/05	4/13/05
CLP VOL	Trichloroethene	510 E	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	Vinyl Chloride	0.88	0.5	0.23	ug/L	4/13/05	4/13/05
CLP VOL	Surrogate Recovery (BFB)	105	75-125		%	4/13/05	4/13/05
CLP VOL	Surrogate Recovery (DCA)	94.6	62-139		%	4/13/05	4/13/05
CLP VOL	Surrogate Recovery (TOL)	109	75-125		%	4/13/05	4/13/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0413N16  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed 4/20/05 11:08:00 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990 86D WATS Bldg 68 Moffett Airfield

Sample ID: 86-WOPT-517

Sample Collection Date: 4/13/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47118

APPL ID: AX17466

QCG: SC42VD-050417AN-85826

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	540	12.5	4.00	ug/L	4/18/05	4/18/05
CLP VOL	Trichloroethene	300	12.5	4.00	ug/L	4/18/05	4/18/05
CLP VOL	Surrogate Recovery (BFB)	108	75-125		%	4/18/05	4/18/05
CLP VOL	Surrogate Recovery (DCA)	113	62-139		%	4/18/05	4/18/05
CLP VOL	Surrogate Recovery (TOL)	100	75-125		%	4/18/05	4/18/05

Run #: 0417N14  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 25  
Initials: LF

Printed: 4/20/05 5:10:02 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

ARF: 47118

Sample ID: 86-WOPT-518

APPL ID: AX17467

Sample Collection Date: 4/13/05

QCG: SC42VT-050413AN-85651

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	1.2	0.5	0.14	ug/L	4/14/05	4/14/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/14/05	4/14/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	3.4	0.5	0.21	ug/L	4/14/05	4/14/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/14/05	4/14/05
CLP VOL	1,1-Dichloroethane	8.0	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	1,1-Dichloroethene	17	0.5	0.30	ug/L	4/14/05	4/14/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/14/05	4/14/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/14/05	4/14/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/14/05	4/14/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/14/05	4/14/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/14/05	4/14/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/14/05	4/14/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/14/05	4/14/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/14/05	4/14/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/14/05	4/14/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/14/05	4/14/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/14/05	4/14/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/14/05	4/14/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/14/05	4/14/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/14/05	4/14/05
CLP VOL	Chloroform	0.20 J	0.5	0.16	ug/L	4/14/05	4/14/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/14/05	4/14/05
CLP VOL	cis-1,2-Dichloroethene	890 E	0.5	0.16	ug/L	4/14/05	4/14/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/14/05	4/14/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/14/05	4/14/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/14/05	4/14/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/14/05	4/14/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0413N17  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed 4/20/05 11:08:00 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-518

Sample Collection Date: 4/13/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47118

APPL ID: AX17467

QCG: SC42VT-050413AN-85651

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	33	0.5	0.15	ug/L	4/14/05	4/14/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/14/05	4/14/05
CLP VOL	trans-1,2-Dichloroethene	30	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/14/05	4/14/05
CLP VOL	Trichloroethene	650 E	0.5	0.16	ug/L	4/14/05	4/14/05
CLP VOL	Vinyl Chloride	1.7	0.5	0.23	ug/L	4/14/05	4/14/05
CLP VOL	Surrogate Recovery (BFB)	107	75-125		%	4/14/05	4/14/05
CLP VOL	Surrogate Recovery (DCA)	97.0	62-139		%	4/14/05	4/14/05
CLP VOL	Surrogate Recovery (TOL)	104	75-125		%	4/14/05	4/14/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0413N17  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:08:00 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990 86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-518

Sample Collection Date: 4/13/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47118

APPL ID: AX17467

QCG: SC42VD-050420BN-86217

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	870	12.5	4.00	ug/L	4/20/05	4/20/05
CLP VOL	Trichloroethene	520	12.5	4.00	ug/L	4/20/05	4/20/05
CLP VOL	Surrogate Recovery (BFB)	107	75-125		%	4/20/05	4/20/05
CLP VOL	Surrogate Recovery (DCA)	99.8	62-139		%	4/20/05	4/20/05
CLP VOL	Surrogate Recovery (TOL)	107	75-125		%	4/20/05	4/20/05

Run #: 0420N18  
Instrument: Neo  
Sequence: N050418  
Dilution Factor: 25  
Initials: LF

Printed 4/28/05 6:46 23 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Blenkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

ARF: 47118

Sample ID: 86-WOPT-519

APPL ID: AX17468

Sample Collection Date: 4/13/05

QCG: SC42VT-050413AN-85651

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	1.1	0.5	0.14	ug/L	4/14/05	4/14/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/14/05	4/14/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	3.6	0.5	0.21	ug/L	4/14/05	4/14/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/14/05	4/14/05
CLP VOL	1,1-Dichloroethane	8.1	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	1,1-Dichloroethene	17	0.5	0.30	ug/L	4/14/05	4/14/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/14/05	4/14/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/14/05	4/14/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/14/05	4/14/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/14/05	4/14/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/14/05	4/14/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/14/05	4/14/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/14/05	4/14/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/14/05	4/14/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/14/05	4/14/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/14/05	4/14/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/14/05	4/14/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/14/05	4/14/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/14/05	4/14/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/14/05	4/14/05
CLP VOL	Chloroform	0.21 J	0.5	0.16	ug/L	4/14/05	4/14/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/14/05	4/14/05
CLP VOL	cis-1,2-Dichloroethene	890 E	0.5	0.16	ug/L	4/14/05	4/14/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/14/05	4/14/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/14/05	4/14/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/14/05	4/14/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/14/05	4/14/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0413N18  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:08:00 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.85D WATS Bldg 88 Moffett Airfield

ARF: 47118

Sample ID: 86-WOPT-519

APPL ID: AX17468

Sample Collection Date: 4/13/05

QCG: SC42VT-050413AN-85651

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	34	0.5	0.15	ug/L	4/14/05	4/14/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/14/05	4/14/05
CLP VOL	trans-1,2-Dichloroethene	30	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/14/05	4/14/05
CLP VOL	Trichloroethene	590 E	0.5	0.16	ug/L	4/14/05	4/14/05
CLP VOL	Vinyl Chloride	1.2	0.5	0.23	ug/L	4/14/05	4/14/05
CLP VOL	Surrogate Recovery (BFB)	106	75-125		%	4/14/05	4/14/05
CLP VOL	Surrogate Recovery (DCA)	94.5	62-139		%	4/14/05	4/14/05
CLP VOL	Surrogate Recovery (TOL)	109	75-125		%	4/14/05	4/14/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0413N18  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed 4/20/05 11:08:01 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc  
1940 E Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-519

Sample Collection Date: 4/13/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47118

APPL ID: AX17468

QCG: SC42VD-050420BN-86217

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	850	12.5	4.00	ug/L	4/20/05	4/20/05
CLP VOL	Trichloroethene	480	12.5	4.00	ug/L	4/20/05	4/20/05
CLP VOL	Surrogate Recovery (BFB)	104	75-125		%	4/20/05	4/20/05
CLP VOL	Surrogate Recovery (DCA)	103	62-139		%	4/20/05	4/20/05
CLP VOL	Surrogate Recovery (TOL)	106	75-125		%	4/20/05	4/20/05

Run #: 0420N19  
Instrument: Neo  
Sequence: N050418  
Dilution Factor: 25  
Initials: LF

Printed 4/28/05 6:46:23 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.66D WATS Bldg 6S Moffett Airfield

Sample ID: 86-WOPT-520

Sample Collection Date: 4/13/05

ARF: 47118

APPL ID: AX17469

QCC: SC42VT-050414AN-85708

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	1.2	0.5	0.14	ug/L	4/14/05	4/14/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/14/05	4/14/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	30	0.5	0.21	ug/L	4/14/05	4/14/05
CLP VOL	1,1,2-Trichloroethane	0.31 J	0.5	0.2	ug/L	4/14/05	4/14/05
CLP VOL	1,1-Dichloroethane	18	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	1,1-Dichloroethane	37	0.5	0.30	ug/L	4/14/05	4/14/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/14/05	4/14/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/14/05	4/14/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/14/05	4/14/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/14/05	4/14/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/14/05	4/14/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/14/05	4/14/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/14/05	4/14/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/14/05	4/14/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/14/05	4/14/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/14/05	4/14/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/14/05	4/14/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/14/05	4/14/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/14/05	4/14/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/14/05	4/14/05
CLP VOL	Chloroform	0.31 J	0.5	0.16	ug/L	4/14/05	4/14/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/14/05	4/14/05
CLP VOL	cis-1,2-Dichloroethene	450 E	0.5	0.16	ug/L	4/14/05	4/14/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/14/05	4/14/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/14/05	4/14/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/14/05	4/14/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/14/05	4/14/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0414N05  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:08:01 AM  
APPL-F1-SC-MCRES/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.66D WATS Bldg 88 Moffett Airfield

ARF: 47118

Sample ID: 86-WOPT-520

APPL ID: AX17469

Sample Collection Date: 4/13/05

QCG: SC42VT-050414AN-85708

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethane	2.8	0.5	0.15	ug/L	4/14/05	4/14/05
CLP VOL	Toluene	0.20 J	0.5	0.17	ug/L	4/14/05	4/14/05
CLP VOL	trans-1,2-Dichloroethene	2.3	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/14/05	4/14/05
CLP VOL	Trichloroethene	1300 E	0.5	0.16	ug/L	4/14/05	4/14/05
CLP VOL	Vinyl Chloride	Not detected	0.5	0.23	ug/L	4/14/05	4/14/05
CLP VOL	Surrogate Recovery (BFB)	106	75-125		%	4/14/05	4/14/05
CLP VOL	Surrogate Recovery (DCA)	110	62-139		%	4/14/05	4/14/05
CLP VOL	Surrogate Recovery (TOL)	98.9	75-125		%	4/14/05	4/14/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0414N05  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:08:01 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-520

Sample Collection Date: 4/13/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47118

APPL ID: AX17469

QCG: SC42VD-050420BN-86217

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	310	25	8.00	ug/L	4/20/05	4/20/05
CLP VOL	Trichloroethene	930	25	8.00	ug/L	4/20/05	4/20/05
CLP VOL	Surrogate Recovery (BFB)	110	75-125		%	4/20/05	4/20/05
CLP VOL	Surrogate Recovery (DCA)	103	62-139		%	4/20/05	4/20/05
CLP VOL	Surrogate Recovery (TOL)	106	75-125		%	4/20/05	4/20/05

Run #: 0420N20  
Instrument: Neo  
Sequence: N050418  
Dilution Factor: 50  
Initials: LF

Printed: 4/28/05 6:46:23 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Blenkowski  
Project: 1990.86D WATS Bldg 88 Moffett Airfield

ARF: 47118

Sample ID: 86-WOPT-521

APPL ID: AX17470

Sample Collection Date: 4/13/05

QCG: SC42VT-050414AN-85708

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	1.5	0.5	0.14	ug/L	4/14/05	4/14/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/14/05	4/14/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	61	0.5	0.21	ug/L	4/14/05	4/14/05
CLP VOL	1,1,2-Trichloroethane	0.47 J	0.5	0.2	ug/L	4/14/05	4/14/05
CLP VOL	1,1-Dichloroethane	12	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	1,1-Dichloroethene	34	0.5	0.30	ug/L	4/14/05	4/14/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/14/05	4/14/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/14/05	4/14/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/14/05	4/14/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/14/05	4/14/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/14/05	4/14/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/14/05	4/14/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/14/05	4/14/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/14/05	4/14/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/14/05	4/14/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/14/05	4/14/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/14/05	4/14/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/14/05	4/14/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/14/05	4/14/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/14/05	4/14/05
CLP VOL	Chloroform	0.34 J	0.5	0.16	ug/L	4/14/05	4/14/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/14/05	4/14/05
CLP VOL	cis-1,2-Dichloroethene	160 E	0.5	0.16	ug/L	4/14/05	4/14/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/14/05	4/14/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/14/05	4/14/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/14/05	4/14/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/14/05	4/14/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0414N06  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:08:01 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

ARF: 47118

Sample ID: 86-WOPT-521

APPL ID: AX17470

Sample Collection Date: 4/13/05

QCG: SC42VT-050414AN-85708

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	1.5	0.5	0.15	ug/L	4/14/05	4/14/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/14/05	4/14/05
CLP VOL	trans-1,2-Dichloroethene	1.5	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/14/05	4/14/05
CLP VOL	Trichloroethene	1400 E	0.5	0.16	ug/L	4/14/05	4/14/05
CLP VOL	Vinyl Chloride	0.57	0.5	0.23	ug/L	4/14/05	4/14/05
CLP VOL	Surrogate Recovery (BFB)	105	75-125		%	4/14/05	4/14/05
CLP VOL	Surrogate Recovery (DCA)	102	62-139		%	4/14/05	4/14/05
CLP VOL	Surrogate Recovery (TOL)	95.0	75-125		%	4/14/05	4/14/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0414N06  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:08:01 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech F.W., Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-521

Sample Collection Date: 4/13/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47118

APPL ID: AX17470

QCG: SC42VD-050420BN-86217

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	150	25	8.00	ug/L	4/20/05	4/20/05
CLP VOL	Trichloroethene	1900	25	8.00	ug/L	4/20/05	4/20/05
CLP VOL	Surrogate Recovery (BFB)	103	75-125		%	4/20/05	4/20/05
CLP VOL	Surrogate Recovery (DCA)	101	62-139		%	4/20/05	4/20/05
CLP VOL	Surrogate Recovery (TOL)	108	75-125		%	4/20/05	4/20/05

Run #: 0420N21  
Instrument: Neo  
Sequence: N050418  
Dilution Factor: 50  
Initials: LF

Printed 4/28/05 6:46:23 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Blenkowski  
Project: 1990.86D WATS Bldg 88 Moffett Airfield

ARF: 47118

Sample ID: 86-WOPT-522

APPL ID: AX17471

Sample Collection Date: 4/13/05

QCG: \$86TTS-050413BC-85701

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 20.4 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	1.0	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.6	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.60	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,1-Dichloroethane	8.1	6	1.4	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,1-Dichloroethene	23	6	0.99	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.90	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.78	ug/Kg	4/14/05	4/14/05
EPA 8260B	2-Butanone	Not detected	63	0.89	ug/Kg	4/14/05	4/14/05
EPA 8260B	2-Hexanone	Not detected	63	0.20	ug/Kg	4/14/05	4/14/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	63	1.2	ug/Kg	4/14/05	4/14/05
EPA 8260B	Acetone	Not detected	130	3.5	ug/Kg	4/14/05	4/14/05
EPA 8260B	Benzene	Not detected	6	0.79	ug/Kg	4/14/05	4/14/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.87	ug/Kg	4/14/05	4/14/05
EPA 8260B	Bromoform	Not detected	6	1.0	ug/Kg	4/14/05	4/14/05
EPA 8260B	Bromomethane	Not detected	13	2.0	ug/Kg	4/14/05	4/14/05
EPA 8260B	Carbon disulfide	Not detected	6	1.4	ug/Kg	4/14/05	4/14/05
EPA 8260B	Carbon tetrachloride	Not detected	6	1.0	ug/Kg	4/14/05	4/14/05
EPA 8260B	Chlorobenzene	Not detected	6	0.62	ug/Kg	4/14/05	4/14/05
EPA 8260B	Chloroethane	Not detected	6	2.0	ug/Kg	4/14/05	4/14/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	4/14/05	4/14/05
EPA 8260B	Chloromethane	Not detected	6	2.3	ug/Kg	4/14/05	4/14/05
EPA 8260B	cis-1,2-Dichloroethene	270	6	1.3	ug/Kg	4/14/05	4/14/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.59	ug/Kg	4/14/05	4/14/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.1	ug/Kg	4/14/05	4/14/05
EPA 8260B	Ethylbenzene	Not detected	6	0.80	ug/Kg	4/14/05	4/14/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/14/05	4/14/05
EPA 8260B	Methylene chloride	Not detected	63	5.8	ug/Kg	4/14/05	4/14/05
EPA 8260B	Styrene	Not detected	6	0.87	ug/Kg	4/14/05	4/14/05
EPA 8260B	Tetrachloroethene	140	6	0.68	ug/Kg	4/14/05	4/14/05
EPA 8260B	Toluene	Not detected	6	0.82	ug/Kg	4/14/05	4/14/05
EPA 8260B	trans-1,2-Dichloroethene	4.3 J	6	1.7	ug/Kg	4/14/05	4/14/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0413C24  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:08:01 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

ARF: 47118

Sample ID: 86-WOPT-522

APPL ID: AX17471

Sample Collection Date: 4/13/05

QCG: S86TTS-050413BC-85701

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.54	ug/Kg	4/14/05	4/14/05
EPA 8260B	Trichloroethene	1000 E	6	0.89	ug/Kg	4/14/05	4/14/05
EPA 8260B	Vinyl Acetate	Not detected	63	1.3	ug/Kg	4/14/05	4/14/05
EPA 8260B	Vinyl chloride	Not detected	6	2.1	ug/Kg	4/14/05	4/14/05
EPA 8260B	Xylenes	Not detected	19	0.85	ug/Kg	4/14/05	4/14/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	83.6	52-149		%	4/14/05	4/14/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	83.3	65-135		%	4/14/05	4/14/05
EPA 8260B	Surrogate recovery: Toluene-d8	90.3	65-135		%	4/14/05	4/14/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0413C24  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:08:01 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.85D WATS Bldg 89 Moffett Airfield

Sample ID: 86-WOPT-522

Sample Collection Date: 4/13/05

ARF: 47118

APPL ID: AX17471

QCG: S86TTD-030417BM-86216

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 20.4 Percent Moisture.)							
EPA 8260B-	Trichloroethene	780	31	10	ug/Kg	4/18/05	4/18/05
EPA 8260B-	Surrogate recovery: 1,2-Dichloroethane	106	52-149		%	4/18/05	4/18/05
EPA 8260B-	Surrogate recovery: 4-Bromofluorobenz	92.6	65-135		%	4/18/05	4/18/05
EPA 8260B-	Surrogate recovery: Toluene-d8	98.1	65-135		%	4/18/05	4/18/05

Run #: 0417M30  
Instrument: Max  
Sequence: M050414  
Dilution Factor: 50  
Initials: LF

Printed: 4/28/05 5:55:58 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990 86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-523

Sample Collection Date: 4/13/05

APPL Inc  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47118

APPL ID: AX17472

CCG: \$96TTS-050413BC-85701

*Dilution*  
*Run*

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 18.7 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	1.0	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.5	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.59	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,1-Dichloroethane	1.8 J	6	1.4	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,1-Dichloroethene	6.3	6	0.97	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.89	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.76	ug/Kg	4/14/05	4/14/05
EPA 8260B	2-Butanone	Not detected	62	0.87	ug/Kg	4/14/05	4/14/05
EPA 8260B	2-Hexanone	Not detected	62	0.20	ug/Kg	4/14/05	4/14/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	62	1.1	ug/Kg	4/14/05	4/14/05
EPA 8260B	Acetone	Not detected	120	3.4	ug/Kg	4/14/05	4/14/05
EPA 8260B	Benzene	Not detected	6	0.77	ug/Kg	4/14/05	4/14/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.85	ug/Kg	4/14/05	4/14/05
EPA 8260B	Bromoform	Not detected	6	0.98	ug/Kg	4/14/05	4/14/05
EPA 8260B	Bromomethane	Not detected	12	2.0	ug/Kg	4/14/05	4/14/05
EPA 8260B	Carbon disulfide	Not detected	6	1.3	ug/Kg	4/14/05	4/14/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.98	ug/Kg	4/14/05	4/14/05
EPA 8260B	Chlorobenzene	Not detected	6	0.60	ug/Kg	4/14/05	4/14/05
EPA 8260B	Chloroethane	Not detected	6	1.9	ug/Kg	4/14/05	4/14/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	4/14/05	4/14/05
EPA 8260B	Chloromethane	Not detected	6	2.2	ug/Kg	4/14/05	4/14/05
EPA 8260B	cis-1,2-Dichloroethene	910 E	6	1.3	ug/Kg	4/14/05	4/14/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.58	ug/Kg	4/14/05	4/14/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.0	ug/Kg	4/14/05	4/14/05
EPA 8260B	Ethylbenzene	Not detected	6	0.79	ug/Kg	4/14/05	4/14/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/14/05	4/14/05
EPA 8260B	Methylene chloride	Not detected	62	5.6	ug/Kg	4/14/05	4/14/05
EPA 8260B	Styrene	Not detected	6	0.85	ug/Kg	4/14/05	4/14/05
EPA 8260B	Tetrachloroethene	3.0 J	6	0.66	ug/Kg	4/14/05	4/14/05
EPA 8260B	Toluene	Not detected	6	0.80	ug/Kg	4/14/05	4/14/05
EPA 8260B	trans-1,2-Dichloroethene	9.7	6	1.7	ug/Kg	4/14/05	4/14/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0413C25  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:08:01 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



# EPA 8260B

Tetra Tech FW, Inc.  
1840 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-523

Sample Collection Date: 4/13/05

ARF: 47118

APPL ID: AX17472

QCG: S86TTS-050413BC-85701

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.53	ug/Kg	4/14/05	4/14/05
EPA 8260B	Trichloroethene	12	6	0.87	ug/Kg	4/14/05	4/14/05
EPA 8260B	Vinyl Acetate	Not detected	62	1.2	ug/Kg	4/14/05	4/14/05
EPA 8260B	Vinyl chloride	Not detected	6	2.1	ug/Kg	4/14/05	4/14/05
EPA 8260B	Xylenes	Not detected	18	0.84	ug/Kg	4/14/05	4/14/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	88.5	52-149		%	4/14/05	4/14/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	96.1	65-135		%	4/14/05	4/14/05
EPA 8260B	Surrogate recovery: Toluene-d8	86.2	65-135		%	4/14/05	4/14/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0413C25  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed 4/20/05 11:08:01 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-523

Sample Collection Date: 4/13/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47118

APPL ID: AX17472

QCG: S86TTD-050417BM-86216

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 18.7 Percent Moisture.)							
EPA 8260B-	cis-1,2-Dichloroethene	400	25	9.8	ug/Kg	4/18/05	4/18/05
EPA 8260B-	Tetrachloroethene	240	25	9.2	ug/Kg	4/18/05	4/18/05
EPA 8260B-	Trichloroethene	1000	31	9.8	ug/Kg	4/18/05	4/18/05
EPA 8260B-	Surrogate recovery: 1,2-Dichloroethane	110	52-149		%	4/18/05	4/18/05
EPA 8260B-	Surrogate recovery: 4-Bromofluorobenz	93.5	65-135		%	4/18/05	4/18/05
EPA 8260B-	Surrogate recovery: Toluene-d8	97.7	65-135		%	4/18/05	4/18/05

Run #: 0417M31  
Instrument: Max  
Sequence: M050414  
Dilution Factor: 50  
Initials: LF

Printed: 5/10/05 9:20:58 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

AFPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-524

Sample Collection Date: 4/13/05

ARF: 47118

APPL ID: AX17473

QCG: S86TTS-050413BC-85701

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 11.8 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	0.92	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.4	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.54	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,1-Dichloroethane	Not detected	6	1.3	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,1-Dichloroethene	1.5 J	6	0.90	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.82	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.70	ug/Kg	4/14/05	4/14/05
EPA 8260B	2-Butanone	Not detected	57	0.80	ug/Kg	4/14/05	4/14/05
EPA 8260B	2-Hexanone	Not detected	57	0.18	ug/Kg	4/14/05	4/14/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	57	1.0	ug/Kg	4/14/05	4/14/05
EPA 8260B	Acetone	Not detected	110	3.2	ug/Kg	4/14/05	4/14/05
EPA 8260B	Benzene	Not detected	6	0.71	ug/Kg	4/14/05	4/14/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.78	ug/Kg	4/14/05	4/14/05
EPA 8260B	Bromoform	Not detected	6	0.91	ug/Kg	4/14/05	4/14/05
EPA 8260B	Bromomethane	Not detected	11	1.8	ug/Kg	4/14/05	4/14/05
EPA 8260B	Carbon disulfide	Not detected	6	1.2	ug/Kg	4/14/05	4/14/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.91	ug/Kg	4/14/05	4/14/05
EPA 8260B	Chlorobenzene	Not detected	6	0.56	ug/Kg	4/14/05	4/14/05
EPA 8260B	Chloroethane	Not detected	6	1.8	ug/Kg	4/14/05	4/14/05
EPA 8260B	Chloroform	Not detected	6	1.6	ug/Kg	4/14/05	4/14/05
EPA 8260B	Chloromethane	Not detected	6	2.1	ug/Kg	4/14/05	4/14/05
EPA 8260B	cis-1,2-Dichloroethene	110	6	1.2	ug/Kg	4/14/05	4/14/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.53	ug/Kg	4/14/05	4/14/05
EPA 8260B	Dibromochloromethane	Not detected	6	0.96	ug/Kg	4/14/05	4/14/05
EPA 8260B	Ethylbenzene	Not detected	6	0.73	ug/Kg	4/14/05	4/14/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.0	ug/Kg	4/14/05	4/14/05
EPA 8260B	Methylene chloride	Not detected	57	5.2	ug/Kg	4/14/05	4/14/05
EPA 8260B	Styrene	Not detected	6	0.78	ug/Kg	4/14/05	4/14/05
EPA 8260B	Tetrachloroethene	6.3	6	0.61	ug/Kg	4/14/05	4/14/05
EPA 8260B	Toluene	Not detected	6	0.74	ug/Kg	4/14/05	4/14/05
EPA 8260B	trans-1,2-Dichloroethene	1.5 J	6	1.5	ug/Kg	4/14/05	4/14/05

J = Estimated value, below quantitation limit.

Run #: 0413C26  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:08:01 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990 86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-524

Sample Collection Date: 4/13/05

ARF, 47118

APPL ID: AX17473

QCG: \$86TTS-050413BC-85701

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.49	ug/Kg	4/14/05	4/14/05
EPA 8260B	Trichloroethene	160	6	0.80	ug/Kg	4/14/05	4/14/05
EPA 8260B	Vinyl Acetate	Not detected	57	1.1	ug/Kg	4/14/05	4/14/05
EPA 8260B	Vinyl chloride	Not detected	6	1.9	ug/Kg	4/14/05	4/14/05
EPA 8260B	Xylenes	Not detected	17	0.77	ug/Kg	4/14/05	4/14/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	88.1	52-149		%	4/14/05	4/14/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	97.2	65-135		%	4/14/05	4/14/05
EPA 8260B	Surrogate recovery: Toluene-d8	89.8	65-135		%	4/14/05	4/14/05

J = Estimated value, below quantitation limit.

Run #: 0413C26  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed 4/20/05 11:08:01 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 88 Mcfett Airfield

Sample ID: 86-WOPT-525

Sample Collection Date: 4/13/05

ARF: 47118

APPL ID: AX17474

QCG: S66TTG-050413BC-85701

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 18.6 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	1.0	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.5	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.59	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,1-Dichloroethane	4.9 J	6	1.4	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,1-Dichloroethene	4.2 J	6	0.97	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.88	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.76	ug/Kg	4/14/05	4/14/05
EPA 8260B	2-Butanone	Not detected	61	0.87	ug/Kg	4/14/05	4/14/05
EPA 8260B	2-Hexanone	Not detected	61	0.20	ug/Kg	4/14/05	4/14/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	61	1.1	ug/Kg	4/14/05	4/14/05
EPA 8260B	Acetone	Not detected	120	3.4	ug/Kg	4/14/05	4/14/05
EPA 8260B	Benzene	Not detected	6	0.77	ug/Kg	4/14/05	4/14/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.85	ug/Kg	4/14/05	4/14/05
EPA 8260B	Bromoform	Not detected	6	0.98	ug/Kg	4/14/05	4/14/05
EPA 8260B	Bromomethane	Not detected	12	2.0	ug/Kg	4/14/05	4/14/05
EPA 8260B	Carbon disulfide	Not detected	6	1.3	ug/Kg	4/14/05	4/14/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.98	ug/Kg	4/14/05	4/14/05
EPA 8260B	Chlorobenzene	Not detected	6	0.60	ug/Kg	4/14/05	4/14/05
EPA 8260B	Chloroethane	Not detected	6	1.9	ug/Kg	4/14/05	4/14/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	4/14/05	4/14/05
EPA 8260B	Chloromethane	Not detected	6	2.2	ug/Kg	4/14/05	4/14/05
EPA 8260B	cis-1,2-Dichloroethene	38	6	1.3	ug/Kg	4/14/05	4/14/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.58	ug/Kg	4/14/05	4/14/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.0	ug/Kg	4/14/05	4/14/05
EPA 8260B	Ethylbenzene	Not detected	6	0.79	ug/Kg	4/14/05	4/14/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/14/05	4/14/05
EPA 8260B	Methylene chloride	Not detected	61	5.6	ug/Kg	4/14/05	4/14/05
EPA 8260B	Styrene	Not detected	6	0.85	ug/Kg	4/14/05	4/14/05
EPA 8260B	Tetrachloroethene	11	6	0.66	ug/Kg	4/14/05	4/14/05
EPA 8260B	Toluene	Not detected	6	0.80	ug/Kg	4/14/05	4/14/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.7	ug/Kg	4/14/05	4/14/05

J = Estimated value, below quantitation limit.

Run #: 0413C27  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990 86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-525

Sample Collection Date: 4/13/05

ARF: 47118

APPL ID: AX17474

QCG: S86TTS-050413BC-85701

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.53	ug/Kg	4/14/05	4/14/05
EPA 8260B	Trichloroethene	86	6	0.87	ug/Kg	4/14/05	4/14/05
EPA 8260B	Vinyl Acetate	Not detected	61	1.2	ug/Kg	4/14/05	4/14/05
EPA 8260B	Vinyl chloride	Not detected	6	2.1	ug/Kg	4/14/05	4/14/05
EPA 8260B	Xylenes	Not detected	18	0.84	ug/Kg	4/14/05	4/14/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	87.6	52-149		%	4/14/05	4/14/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	102	65-135		%	4/14/05	4/14/05
EPA 8260B	Surrogate recovery: Toluene-d8	90.0	65-135		%	4/14/05	4/14/05

J = Estimated value, below quantitation limit.

Run #: 0413C27  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:08:01 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990 86D WATS Bldg 88 Moffett Airfield

ARF: 47118

Sample ID: 86-WOPT-526

APPL ID: AX17475

Sample Collection Date: 4/13/05

QCG: S86TTS-050413BC-857C1

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 12.8 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	0.93	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.4	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.55	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,1-Dichloroethane	2.1 J	6	1.3	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,1-Dichloroethene	5.2 J	6	0.91	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.83	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.71	ug/Kg	4/14/05	4/14/05
EPA 8260B	2-Butanone	Not detected	57	0.81	ug/Kg	4/14/05	4/14/05
EPA 8260B	2-Hexanone	Not detected	57	0.18	ug/Kg	4/14/05	4/14/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	57	1.1	ug/Kg	4/14/05	4/14/05
EPA 8260B	Acetone	Not detected	110	3.2	ug/Kg	4/14/05	4/14/05
EPA 8260B	Benzene	Not detected	6	0.72	ug/Kg	4/14/05	4/14/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.79	ug/Kg	4/14/05	4/14/05
EPA 8260B	Bromoform	Not detected	6	0.92	ug/Kg	4/14/05	4/14/05
EPA 8260B	Bromomethane	Not detected	11	1.8	ug/Kg	4/14/05	4/14/05
EPA 8260B	Carbon disulfide	Not detected	6	1.2	ug/Kg	4/14/05	4/14/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.92	ug/Kg	4/14/05	4/14/05
EPA 8260B	Chlorobenzene	Not detected	6	0.56	ug/Kg	4/14/05	4/14/05
EPA 8260B	Chloroethane	Not detected	6	1.8	ug/Kg	4/14/05	4/14/05
EPA 8260B	Chloroform	Not detected	6	1.6	ug/Kg	4/14/05	4/14/05
EPA 8260B	Chloromethane	Not detected	6	2.1	ug/Kg	4/14/05	4/14/05
EPA 8260B	cis-1,2-Dichloroethene	81	6	1.2	ug/Kg	4/14/05	4/14/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.54	ug/Kg	4/14/05	4/14/05
EPA 8260B	Dibromochloromethane	Not detected	6	0.97	ug/Kg	4/14/05	4/14/05
EPA 8260B	Ethylbenzene	Not detected	6	0.73	ug/Kg	4/14/05	4/14/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.0	ug/Kg	4/14/05	4/14/05
EPA 8260B	Methylene chloride	Not detected	57	5.2	ug/Kg	4/14/05	4/14/05
EPA 8260B	Styrene	Not detected	6	0.79	ug/Kg	4/14/05	4/14/05
EPA 8260B	Tetrachloroethene	2.0 J	6	0.62	ug/Kg	4/14/05	4/14/05
EPA 8260B	Toluene	Not detected	6	0.75	ug/Kg	4/14/05	4/14/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.6	ug/Kg	4/14/05	4/14/05

J = Estimated value, below quantitation limit.

Run #: 0413C28  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:08:01 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-526

Sample Collection Date: 4/13/05

ARF: 47118

APPL ID: AX17475

QCG: \$86TTS-050413BC-85701

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.49	ug/Kg	4/14/05	4/14/05
EPA 8260B	Trichloroethene	400	6	0.81	ug/Kg	4/14/05	4/14/05
EPA 8260B	Vinyl Acetate	Not detected	57	1.1	ug/Kg	4/14/05	4/14/05
EPA 8260B	Vinyl chloride	Not detected	6	1.9	ug/Kg	4/14/05	4/14/05
EPA 8260B	Xylenes	Not detected	17	0.78	ug/Kg	4/14/05	4/14/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	96.7	52-149		%	4/14/05	4/14/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	104	65-135		%	4/14/05	4/14/05
EPA 8260B	Surrogate recovery: Toluene-d8	87.6	65-135		%	4/14/05	4/14/05

J = Estimated value, below quantitation limit.

Run #: 0413C28  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:08:01 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Blenkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

ARF: 47118

Sample ID: 86-WOPT-527

APPL ID: AX17476

Sample Collection Date: 4/13/05

QCG: \$86TTS-050413BC-85701

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 13.2 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	0.93	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.4	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.55	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,1-Dichloroethane	Not detected	6	1.3	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,1-Dichloroethene	3.9 J	6	0.91	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.83	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.71	ug/Kg	4/14/05	4/14/05
EPA 8260B	2-Butanone	Not detected	58	0.82	ug/Kg	4/14/05	4/14/05
EPA 8260B	2-Hexanone	Not detected	58	0.18	ug/Kg	4/14/05	4/14/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	58	1.1	ug/Kg	4/14/05	4/14/05
EPA 8260B	Acetone	Not detected	120	3.2	ug/Kg	4/14/05	4/14/05
EPA 8260B	Benzene	Not detected	6	0.73	ug/Kg	4/14/05	4/14/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.79	ug/Kg	4/14/05	4/14/05
EPA 8260B	Bromoform	Not detected	6	0.92	ug/Kg	4/14/05	4/14/05
EPA 8260B	Bromomethane	Not detected	12	1.8	ug/Kg	4/14/05	4/14/05
EPA 8260B	Carbon disulfide	Not detected	6	1.2	ug/Kg	4/14/05	4/14/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.92	ug/Kg	4/14/05	4/14/05
EPA 8260B	Chlorobenzene	Not detected	6	0.56	ug/Kg	4/14/05	4/14/05
EPA 8260B	Chloroethane	Not detected	6	1.8	ug/Kg	4/14/05	4/14/05
EPA 8260B	Chloroform	Not detected	6	1.6	ug/Kg	4/14/05	4/14/05
EPA 8260B	Chloromethane	Not detected	6	2.1	ug/Kg	4/14/05	4/14/05
EPA 8260B	cis-1,2-Dichloroethene	23	6	1.2	ug/Kg	4/14/05	4/14/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.54	ug/Kg	4/14/05	4/14/05
EPA 8260B	Dibromochloromethane	Not detected	6	0.98	ug/Kg	4/14/05	4/14/05
EPA 8260B	Ethylbenzene	Not detected	6	0.74	ug/Kg	4/14/05	4/14/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.0	ug/Kg	4/14/05	4/14/05
EPA 8260B	Methylene chloride	Not detected	58	5.3	ug/Kg	4/14/05	4/14/05
EPA 8260B	Styrene	Not detected	6	0.79	ug/Kg	4/14/05	4/14/05
EPA 8260B	Tetrachloroethene	Not detected	6	0.62	ug/Kg	4/14/05	4/14/05
EPA 8260B	Toluene	Not detected	6	0.75	ug/Kg	4/14/05	4/14/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.6	ug/Kg	4/14/05	4/14/05

J = Estimated value, below quantitation limit.

Run #: 0413C29  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:08:01 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-527

Sample Collection Date: 4/13/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47118

APPL ID: AX17476

QCG: \$86TTS-050413BC-85701

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.50	ug/Kg	4/14/05	4/14/05
EPA 8260B	Trichloroethene	420	6	0.82	ug/Kg	4/14/05	4/14/05
EPA 8260B	Vinyl Acetate	Not detected	58	1.2	ug/Kg	4/14/05	4/14/05
EPA 8260B	Vinyl chloride	Not detected	6	1.9	ug/Kg	4/14/05	4/14/05
EPA 8260B	Xylenes	Not detected	17	0.78	ug/Kg	4/14/05	4/14/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	90.2	52-149		%	4/14/05	4/14/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	98.7	65-135		%	4/14/05	4/14/05
EPA 8260B	Surrogate recovery: Toluene-d8	84.2	65-135		%	4/14/05	4/14/05

J = Estimated value, below quantitation limit.

Run #: 0413C29  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:08:01 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Telus Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990 86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-528

Sample Collection Date: 4/13/05

ARF: 47118

APPL ID: AX17477

QCG: S36TTW-050413BM-8567

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/14/05	4/14/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/14/05	4/14/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/14/05	4/14/05
EPA 8260B	1,1-Dichloroethane	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05
EPA 8260B	1,1-Dichloroethene	Not detected	0.5	0.30	ug/L	4/14/05	4/14/05
EPA 8260B	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/14/05	4/14/05
EPA 8260B	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/14/05	4/14/05
EPA 8260B	2-Butanone	Not detected	5	0.6	ug/L	4/14/05	4/14/05
EPA 8260B	2-Hexanone	Not detected	5	0.92	ug/L	4/14/05	4/14/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/14/05	4/14/05
EPA 8260B	Acetone	Not detected	5	0.95	ug/L	4/14/05	4/14/05
EPA 8260B	Benzene	Not detected	0.5	0.16	ug/L	4/14/05	4/14/05
EPA 8260B	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/14/05	4/14/05
EPA 8260B	Bromoform	Not detected	0.5	0.14	ug/L	4/14/05	4/14/05
EPA 8260B	Bromomethane	Not detected	1	0.24	ug/L	4/14/05	4/14/05
EPA 8260B	Carbon disulfide	Not detected	0.5	0.2	ug/L	4/14/05	4/14/05
EPA 8260B	Carbon tetrachloride	Not detected	0.5	0.10	ug/L	4/14/05	4/14/05
EPA 8260B	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/14/05	4/14/05
EPA 8260B	Chloroethane	Not detected	0.5	0.21	ug/L	4/14/05	4/14/05
EPA 8260B	Chloroform	Not detected	0.5	0.16	ug/L	4/14/05	4/14/05
EPA 8260B	Chloromethane	Not detected	0.5	0.31	ug/L	4/14/05	4/14/05
EPA 8260B	cis-1,2-Dichloroethene	Not detected	0.5	0.16	ug/L	4/14/05	4/14/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/14/05	4/14/05
EPA 8260B	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05
EPA 8260B	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/14/05	4/14/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05
EPA 8260B	Methylene chloride	Not detected	5	0.35	ug/L	4/14/05	4/14/05
EPA 8260B	Styrene	Not detected	0.5	0.25	ug/L	4/14/05	4/14/05
EPA 8260B	Tetrachloroethene	Not detected	0.5	0.15	ug/L	4/14/05	4/14/05
EPA 8260B	Toluene	Not detected	0.5	0.17	ug/L	4/14/05	4/14/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05

Run #: 0413M36  
Instrument: Max  
Sequence: M050411  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:08:01 AM  
APPL-F1-SC-MCRES/MCQOL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski  
Project: 1990 86D WATS Bldg 88 Moffett Airfield

ARF: 47118

Sample ID: 86-WOPT-528

APPL ID: AX17477

Sample Collection Date: 4/13/05

QC: S86TTW-050413BM-8567

Method	Analyte	Result	FQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/14/05	4/14/05
EPA 8260B	Trichloroethene	Not detected	0.5	0.16	ug/L	4/14/05	4/14/05
EPA 8260B	Vinyl Acetate	Not detected	5	0.31	ug/L	4/14/05	4/14/05
EPA 8260B	Vinyl chloride	Not detected	0.5	0.23	ug/L	4/14/05	4/14/05
EPA 8260B	Xylenes	Not detected	1.5	0.19	ug/L	4/14/05	4/14/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	104	62-139		%	4/14/05	4/14/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	96.1	75-125		%	4/14/05	4/14/05
EPA 8260B	Surrogate recovery: Toluene-d8	97.6	75-125		%	4/14/05	4/14/05

Run #: 0413M36  
Instrument: Max  
Sequence: M050411  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:08 01 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 68 Moffett Airfield

Sample ID: 86-WOPT-529

Sample Collection Date: 4/13/05

ARF: 47118

APPL ID: AX17478

QCG: SC42VT-050414AN-85708

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	1.6	0.5	0.14	ug/L	4/14/05	4/14/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/14/05	4/14/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	2.2	0.5	0.21	ug/L	4/14/05	4/14/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/14/05	4/14/05
CLP VOL	1,1-Dichloroethane	5.3	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	1,1-Dichloroethane	7.9	0.5	0.30	ug/L	4/14/05	4/14/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/14/05	4/14/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/14/05	4/14/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/14/05	4/14/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/14/05	4/14/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/14/05	4/14/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/14/05	4/14/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/14/05	4/14/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/14/05	4/14/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/14/05	4/14/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/14/05	4/14/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/14/05	4/14/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/14/05	4/14/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/14/05	4/14/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/14/05	4/14/05
CLP VOL	Chloroform	0.21 J	0.5	0.16	ug/L	4/14/05	4/14/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/14/05	4/14/05
CLP VOL	cis-1,2-Dichloroethene	170 E	0.5	0.16	ug/L	4/14/05	4/14/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/14/05	4/14/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/14/05	4/14/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/14/05	4/14/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/14/05	4/14/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0414N07  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:08:01 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech EW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOFT-529

Sample Collection Date: 4/13/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47118

APPL ID: AX17478

QCG: SC42VT-050414AN-85708

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	0.55	0.5	0.15	ug/L	4/14/05	4/14/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/14/05	4/14/05
CLP VOL	trans-1,2-Dichloroethene	1.1	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/14/05	4/14/05
CLP VOL	Trichloroethene	270 E	0.5	0.16	ug/L	4/14/05	4/14/05
CLP VOL	Vinyl Chloride	0.51	0.5	0.23	ug/L	4/14/05	4/14/05
CLP VOL	Surrogate Recovery (BFB)	103	75-125		%	4/14/05	4/14/05
CLP VOL	Surrogate Recovery (DCA)	123	62-139		%	4/14/05	4/14/05
CLP VOL	Surrogate Recovery (TOL)	99.5	75-125		%	4/14/05	4/14/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0414N07  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:08:01 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski  
Project: 1990.86D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-529**

Sample Collection Date: 4/13/05

ARF: 47118

**APPL ID: AX17478**

QCG: SC42VD-050420BN-86217

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	160	2.5	0.80	ug/L	4/20/05	4/20/05
CLP VOL	Trichloroethene	210	2.5	0.80	ug/L	4/20/05	4/20/05
CLP VOL	Surrogate Recovery (BFB)	105	75-125		%	4/20/05	4/20/05
CLP VOL	Surrogate Recovery (DCA)	105	62-139		%	4/20/05	4/20/05
CLP VOL	Surrogate Recovery (TOL)	110	75-125		%	4/20/05	4/20/05

Run #: 0420N22  
Instrument: Neo  
Sequence: N050418  
Dilution Factor: 5  
Initials: LF

Printed: 4/28/05 6:46:23 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deora Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-530

Sample Collection Date: 4/13/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47118

APPL ID: AX17479

OCG: SC42VT-050414AN-85708

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	1.5	0.5	0.14	ug/L	4/14/05	4/14/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/14/05	4/14/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	92	0.5	0.21	ug/L	4/14/05	4/14/05
CLP VOL	1,1,2-Trichloroethane	0.46 J	0.5	0.2	ug/L	4/14/05	4/14/05
CLP VOL	1,1-Dichloroethane	10	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	1,1-Dichloroethene	38	0.5	0.30	ug/L	4/14/05	4/14/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/14/05	4/14/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/14/05	4/14/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/14/05	4/14/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/14/05	4/14/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/14/05	4/14/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/14/05	4/14/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/14/05	4/14/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/14/05	4/14/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/14/05	4/14/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/14/05	4/14/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/14/05	4/14/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/14/05	4/14/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/14/05	4/14/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/14/05	4/14/05
CLP VOL	Chloroform	0.47 J	0.5	0.16	ug/L	4/14/05	4/14/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/14/05	4/14/05
CLP VOL	cis-1,2-Dichloroethene	120 E	0.5	0.16	ug/L	4/14/05	4/14/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/14/05	4/14/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/14/05	4/14/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/14/05	4/14/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/14/05	4/14/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0414N08  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed 4/20/05 11:08:01 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 88 Moffatt Airfield

Sample ID: 86-WOPT-530

Sample Collection Date: 4/13/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47118

APPL ID: AX17479

QCG: SC42VT-050414AN-85708

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	290 E	0.5	0.15	ug/L	4/14/05	4/14/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/14/05	4/14/05
CLP VOL	trans-1,2-Dichloroethene	1.2	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/14/05	4/14/05
CLP VOL	Trichloroethene	1700 E	0.5	0.16	ug/L	4/14/05	4/14/05
CLP VOL	Vinyl Chloride	0.48 J	0.5	0.23	ug/L	4/14/05	4/14/05
CLP VOL	Surrogate Recovery (BFB)	104	75-125		%	4/14/05	4/14/05
CLP VOL	Surrogate Recovery (DCA)	114	62-139		%	4/14/05	4/14/05
CLP VOL	Surrogate Recovery (TOL)	94.8	75-125		%	4/14/05	4/14/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0414N08  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:08:01 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990 85D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-530

Sample Collection Date: 4/13/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47118

APPL ID: AX17479

QCG: SC42VD-050415DN-85825

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	89	25	8.00	ug/L	4/16/05	4/16/05
CLP VOL	Tetrachloroethene	220	25	7.50	ug/L	4/16/05	4/16/05
CLP VOL	Trichloroethene	2400	25	8.00	ug/L	4/16/05	4/16/05
CLP VOL	Surrogate Recovery (BFB)	98.6	75-125		%	4/16/05	4/16/05
CLP VOL	Surrogate Recovery (DCA)	104	62-139		%	4/16/05	4/16/05
CLP VOL	Surrogate Recovery (TOL)	102	75-125		%	4/16/05	4/16/05

Run #: 0415N59  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 50  
Initials: LF

Printed 4/20/05 5:10:02 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

ARF: 47118

Sample ID: 86-WOPT-531

APPL ID: AX17480

Sample Collection Date: 4/13/05

CCG: SC42VT-050414AN-85708

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	1.4	0.5	0.14	ug/L	4/14/05	4/14/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/14/05	4/14/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	100 E	0.5	0.21	ug/L	4/14/05	4/14/05
CLP VOL	1,1,2-Trichloroethane	0.40 J	0.5	0.2	ug/L	4/14/05	4/14/05
CLP VOL	1,1-Dichloroethane	10	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	1,1-Dichloroethene	41	0.5	0.30	ug/L	4/14/05	4/14/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/14/05	4/14/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/14/05	4/14/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/14/05	4/14/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/14/05	4/14/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/14/05	4/14/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/14/05	4/14/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/14/05	4/14/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/14/05	4/14/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/14/05	4/14/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/14/05	4/14/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/14/05	4/14/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/14/05	4/14/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/14/05	4/14/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/14/05	4/14/05
CLP VOL	Chloroform	0.45 J	0.5	0.16	ug/L	4/14/05	4/14/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/14/05	4/14/05
CLP VOL	cis-1,2-Dichloroethene	110 E	0.5	0.16	ug/L	4/14/05	4/14/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/14/05	4/14/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/14/05	4/14/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/14/05	4/14/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/14/05	4/14/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0414N09  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-531

Sample Collection Date: 4/13/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47118

APPL ID: AX17480

QCG: SC42VT-050414AN-85708

Method	Analyte	Result	FQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	330 E	0.5	0.15	ug/L	4/14/05	4/14/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/14/05	4/14/05
CLP VOL	trans-1,2-Dichloroethene	0.81	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/14/05	4/14/05
CLP VOL	Trichloroethene	1800 E	0.5	0.16	ug/L	4/14/05	4/14/05
CLP VOL	Vinyl Chloride	0.53	0.5	0.23	ug/L	4/14/05	4/14/05
CLP VOL	Surrogate Recovery (BFB)	105	75-125		%	4/14/05	4/14/05
CLP VOL	Surrogate Recovery (DCA)	101	62-139		%	4/14/05	4/14/05
CLP VOL	Surrogate Recovery (TOL)	105	75-125		%	4/14/05	4/14/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0414N09  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:08:01 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-531

Sample Collection Date: 4/13/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47118

APPL ID: AX17480

QCG: SC42VD-050415DN-85825

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	78	25	10.50	ug/L	4/17/05	4/17/05
CLP VOL	cis-1,2-Dichloroethene	92	25	8.00	ug/L	4/17/05	4/17/05
CLP VOL	Tetrachloroethene	250	25	7.50	ug/L	4/17/05	4/17/05
CLP VOL	Trichloroethene	2800	25	8.00	ug/L	4/17/05	4/17/05
CLP VOL	Surrogate Recovery (BFB)	103	75-125		%	4/17/05	4/17/05
CLP VOL	Surrogate Recovery (DCA)	104	62-139		%	4/17/05	4/17/05
CLP VOL	Surrogate Recovery (TOL)	103	75-125		%	4/17/05	4/17/05

Run #: 0415N60  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 50  
Initials: LF

Printed: 4/20/05 5:10:02 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1930.86D WATS Bldg 88 Moffett Airfield

ARF: 47118

Sample ID: 86-WOPT-1016

APPL ID: AX17481

Sample Collection Date: 4/13/05

QCG: SC42VT-050414AN-85708

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	1.8	0.5	0.14	ug/L	4/14/05	4/14/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/14/05	4/14/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	0.5	0.21	ug/L	4/14/05	4/14/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/14/05	4/14/05
CLP VOL	1,1-Dichloroethane	7.4	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	1,1-Dichloroethene	10	0.5	0.30	ug/L	4/14/05	4/14/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/14/05	4/14/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/14/05	4/14/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/14/05	4/14/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/14/05	4/14/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/14/05	4/14/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/14/05	4/14/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/14/05	4/14/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/14/05	4/14/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/14/05	4/14/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/14/05	4/14/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/14/05	4/14/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/14/05	4/14/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/14/05	4/14/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/14/05	4/14/05
CLP VOL	Chloroform	0.57	0.5	0.16	ug/L	4/14/05	4/14/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/14/05	4/14/05
CLP VOL	cis-1,2-Dichloroethene	180 E	0.5	0.16	ug/L	4/14/05	4/14/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/14/05	4/14/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/14/05	4/14/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/14/05	4/14/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/14/05	4/14/05

E = The reported value exceeds linear range.

Run #: 0414N10  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990 86D WATS Bldg 88 Moffett Airfield

ARF: 47118

Sample ID: 86-WOPT-1016

APPL ID: AX17481

Sample Collection Date: 4/13/05

QCG: SC42VT-050414AN-85708

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	19	0.5	0.15	ug/L	4/14/05	4/14/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/14/05	4/14/05
CLP VOL	trans-1,2-Dichloroethene	3.8	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/14/05	4/14/05
CLP VOL	Trichloroethene	710 E	0.5	0.16	ug/L	4/14/05	4/14/05
CLP VOL	Vinyl Chloride	0.57	0.5	0.23	ug/L	4/14/05	4/14/05
CLP VOL	Surrogate Recovery (BFB)	109	75-125		%	4/14/05	4/14/05
CLP VOL	Surrogate Recovery (DCA)	107	62-139		%	4/14/05	4/14/05
CLP VOL	Surrogate Recovery (TOL)	101	75-125		%	4/14/05	4/14/05

E = The reported value exceeds linear range.

Run #: 0414N10  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:08:01 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech: FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990.86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1016

Sample Collection Date: 4/13/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47118

APPL ID: AX17481

QCG: \$C42VD-050415DN-85825

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	150	10	3.20	ug/L	4/17/05	4/17/05
CLP VOL	Trichloroethene	590	10	3.20	ug/L	4/17/05	4/17/05
CLP VOL	Surrogate Recovery (BFB)	105	75-125		%	4/17/05	4/17/05
CLP VOL	Surrogate Recovery (DCA)	112	62-139		%	4/17/05	4/17/05
CLP VOL	Surrogate Recovery (TOL)	106	75-125		%	4/17/05	4/17/05

Run #: 0415N61  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 20  
Initials: LF

Printed 4/20/05 5:10:02 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990 86D WATS Bldg 88 Moffett Airfield

ARF: 47118

Sample ID: 86-WOPT-1017

APPL ID: AX17482

Sample Collection Date: 4/13/05

QCG: SC42VT-050413AN-85651

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/13/05	4/13/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	0.5	0.21	ug/L	4/13/05	4/13/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/13/05	4/13/05
CLP VOL	1,1-Dichloroethane	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	1,1-Dichloroethane	Not detected	0.5	0.30	ug/L	4/13/05	4/13/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/13/05	4/13/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/13/05	4/13/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/13/05	4/13/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/13/05	4/13/05
CLP VOL	Acetone	5.2	5	0.95	ug/L	4/13/05	4/13/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/13/05	4/13/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/13/05	4/13/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/13/05	4/13/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/13/05	4/13/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/13/05	4/13/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/13/05	4/13/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/13/05	4/13/05
CLP VOL	cis-1,2-Dichloroethene	Not detected	0.5	0.16	ug/L	4/13/05	4/13/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/13/05	4/13/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/13/05	4/13/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Methylene Chloride	0.41 J	0.5	0.35	ug/L	4/13/05	4/13/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/13/05	4/13/05

J = Estimated value, below quantitation limit.

Run #: 0413N14  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed 5/10/05 5:09:49 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1017

Sample Collection Date: 4/13/05

ARF: 47118

APPL ID: AX17482

QCG: \$C42VT-050413AN-85651

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	Not detected	0.5	0.15	ug/L	4/13/05	4/13/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/13/05	4/13/05
CLP VOL	trans-1,2-Dichloroethene	Not detected	0.5	0.19	ug/L	4/13/05	4/13/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/13/05	4/13/05
CLF VOL	Trichloroethene	0.35 J	0.5	0.15	ug/L	4/13/05	4/13/05
CLP VOL	Vinyl Chloride	Not detected	0.5	0.23	ug/L	4/13/05	4/13/05
CLP VOL	Surrogate Recovery (BFB)	105	75-125		%	4/13/05	4/13/05
CLP VOL	Surrogate Recovery (DCA)	100.0	62-139		%	4/13/05	4/13/05
CLP VOL	Surrogate Recovery (TOL)	107	75-125		%	4/13/05	4/13/05

J = Estimated value, below quantitation limit.

Run #: 0413N14  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 5/10/05 5:09:49 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1018

Sample Collection Date: 4/13/05

ARF: 47118

APPL ID: AX17483

QC# SC42VT-050414AN-85708

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	2.2	0.5	0.14	ug/L	4/14/05	4/14/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/14/05	4/14/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	5.7	0.5	0.21	ug/L	4/14/05	4/14/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/14/05	4/14/05
CLP VOL	1,1-Dichloroethane	5.5	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	1,1-Dichloroethene	7.0	0.5	0.30	ug/L	4/14/05	4/14/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/14/05	4/14/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/14/05	4/14/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/14/05	4/14/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/14/05	4/14/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/14/05	4/14/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/14/05	4/14/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/14/05	4/14/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/14/05	4/14/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/14/05	4/14/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/14/05	4/14/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/14/05	4/14/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/14/05	4/14/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/14/05	4/14/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/14/05	4/14/05
CLP VOL	Chloroform	0.59	0.5	0.16	ug/L	4/14/05	4/14/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/14/05	4/14/05
CLP VOL	cis-1,2-Dichloroethene	190 E	0.5	0.16	ug/L	4/14/05	4/14/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/14/05	4/14/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/14/05	4/14/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/14/05	4/14/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/14/05	4/14/05

E = The reported value exceeds linear range.

Run #: 0414N11  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:08:02 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1930.86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1018

Sample Collection Date: 4/13/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47118

APPL ID: AX17483

QCG: \$C42VT-050414AN-85708

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	2.6	0.5	0.15	ug/L	4/14/05	4/14/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/14/05	4/14/05
CLP VOL	trans-1,2-Dichloroethene	5.0	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/14/05	4/14/05
CLP VOL	Trichloroethene	650 E	0.5	0.16	ug/L	4/14/05	4/14/05
CLP VOL	Vinyl Chloride	0.61	0.5	0.23	ug/L	4/14/05	4/14/05
CLP VOL	Surrogate Recovery (BFB)	110	75-125		%	4/14/05	4/14/05
CLP VOL	Surrogate Recovery (DCA)	106	62-139		%	4/14/05	4/14/05
CLP VOL	Surrogate Recovery (TOL)	99.3	75-125		%	4/14/05	4/14/05

E = The reported value exceeds linear range.

Run #: 0414N11  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:08:02 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990 86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1018

Sample Collection Date: 4/13/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47118

APPL ID: AX17483

QCG: \$C42VD-050415DN-85825

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	150	10	3.20	ug/L	4/17/05	4/17/05
CLP VOL	Trichloroethene	470	10	3.20	ug/L	4/17/05	4/17/05
CLP VOL	Surrogate Recovery (BFB)	104	75-125		%	4/17/05	4/17/05
CLP VOL	Surrogate Recovery (DCA)	110	62-139		%	4/17/05	4/17/05
CLP VOL	Surrogate Recovery (TOL)	102	75-125		%	4/17/05	4/17/05

Run #: 0415N62  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 20  
Initials: LF

Printed: 4/20/05 5:10:02 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990 86D WATS Bldg 88 Moffett Airfield

ARF: 47119

Sample ID: 86-WOPT-1019

APPL ID: AX17484

Sample Collection Date: 4/13/05

QCG: SC42VT-050414AN-85708

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	2.9	0.5	0.14	ug/L	4/14/05	4/14/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/14/05	4/14/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	7.1	0.5	0.21	ug/L	4/14/05	4/14/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/14/05	4/14/05
CLP VOL	1,1-Dichloroethane	6.7	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	1,1-Dichloroethene	12	0.5	0.30	ug/L	4/14/05	4/14/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/14/05	4/14/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/14/05	4/14/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/14/05	4/14/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/14/05	4/14/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/14/05	4/14/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/14/05	4/14/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/14/05	4/14/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/14/05	4/14/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/14/05	4/14/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/14/05	4/14/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/14/05	4/14/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/14/05	4/14/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/14/05	4/14/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/14/05	4/14/05
CLP VOL	Chloroform	0.71	0.5	0.16	ug/L	4/14/05	4/14/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/14/05	4/14/05
CLP VOL	cis-1,2-Dichloroethene	210 E	0.5	0.16	ug/L	4/14/05	4/14/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/14/05	4/14/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/14/05	4/14/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/14/05	4/14/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/14/05	4/14/05

E = The reported value exceeds linear range.

Run #: 0414N12  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed 4/20/05 11:08:02 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1019

Sample Collection Date: 4/13/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47118

APPL ID: AX17484

QCG: SC42VT-050414AN-65708

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	3.0	0.5	0.15	ug/L	4/14/05	4/14/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/14/05	4/14/05
CLP VOL	trans-1,2-Dichloroethene	2.5	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/14/05	4/14/05
CLP VOL	Trichloroethene	740 E	0.5	0.16	ug/L	4/14/05	4/14/05
CLP VOL	Vinyl Chloride	0.76	0.5	0.23	ug/L	4/14/05	4/14/05
CLP VOL	Surrogate Recovery (BFB)	104	75-125		%	4/14/05	4/14/05
CLP VOL	Surrogate Recovery (DCA)	109	62-139		%	4/14/05	4/14/05
CLP VOL	Surrogate Recovery (TOL)	104	75-125		%	4/14/05	4/14/05

E = The reported value exceeds linear range.

Run #: 0414N12  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:08:02 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990.86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1019

Sample Collection Date: 4/13/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47118

APPL ID: AX17484

QCG: SC42VD-050415DN-85825

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	160	10	3.20	ug/L	4/17/05	4/17/05
CLP VOL	Trichloroethene	530	10	3.20	ug/L	4/17/05	4/17/05
CLP VOL	Surrogate Recovery (BFB)	103	75-125		%	4/17/05	4/17/05
CLP VOL	Surrogate Recovery (DCA)	107	62-139		%	4/17/05	4/17/05
CLP VOL	Surrogate Recovery (TOL)	99.7	75-125		%	4/17/05	4/17/05

Run #: 0415N63  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 20  
Initials: LF

Printed: 4/20/05 5:10:02 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Blenkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1020

Sample Collection Date: 4/13/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47118

APPL ID: AX17485

QCG: SC42VT-050414AN-85708

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	2.6	0.5	0.14	ug/L	4/14/05	4/14/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/14/05	4/14/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	5.4	0.5	0.21	ug/L	4/14/05	4/14/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/14/05	4/14/05
CLP VOL	1,1-Dichloroethane	5.4	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	1,1-Dichloroethene	8.9	0.5	0.30	ug/L	4/14/05	4/14/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/14/05	4/14/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/14/05	4/14/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/14/05	4/14/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/14/05	4/14/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/14/05	4/14/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/14/05	4/14/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/14/05	4/14/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/14/05	4/14/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/14/05	4/14/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/14/05	4/14/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/14/05	4/14/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/14/05	4/14/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/14/05	4/14/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/14/05	4/14/05
CLP VOL	Chloroform	0.72	0.5	0.16	ug/L	4/14/05	4/14/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/14/05	4/14/05
CLP VOL	cis-1,2-Dichloroethene	170 E	0.5	0.16	ug/L	4/14/05	4/14/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/14/05	4/14/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/14/05	4/14/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/14/05	4/14/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/14/05	4/14/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0414N13  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:08:02 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990.86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1020

Sample Collection Date: 4/13/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47118

APPL ID: AX17485

QCG: SC42VT-050414AN-85708

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	2.1	0.5	0.15	ug/L	4/14/05	4/14/05
CLP VOL	Toluene	0.18 J	0.5	0.17	ug/L	4/14/05	4/14/05
CLP VOL	trans-1,2-Dichloroethene	2.3	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/14/05	4/14/05
CLP VOL	Trichloroethene	590 E	0.5	0.16	ug/L	4/14/05	4/14/05
CLP VOL	Vinyl Chloride	0.62	0.5	0.23	ug/L	4/14/05	4/14/05
CLP VOL	Surrogate Recovery (BFB)	111	75-125		%	4/14/05	4/14/05
CLP VOL	Surrogate Recovery (DCA)	102	62-139		%	4/14/05	4/14/05
CLP VOL	Surrogate Recovery (TOL)	108	75-125		%	4/14/05	4/14/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0414N13  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:08:02 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1020

Sample Collection Date: 4/13/05

APPL inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47118

APPL ID: AX17485

QCG: SC42VD-050415DN-85825

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	160	10	3.20	ug/L	4/17/05	4/17/05
CLP VOL	Trichloroethene	510	10	3.20	ug/L	4/17/05	4/17/05
CLP VOL	Surrogate Recovery (BFB)	104	75-125		%	4/17/05	4/17/05
CLP VOL	Surrogate Recovery (DCA)	111	62-139		%	4/17/05	4/17/05
CLP VOL	Surrogate Recovery (TOL)	97.8	75-125		%	4/17/05	4/17/05

Run #: 0415N64  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 20  
Initials: LF

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski  
Project: 1990.86D WATS Bldg 88 Moffett Airfield

ARF: 47118

Sample ID: 86-WOPT-1021

APPL ID: AX17486

Sample Collection Date: 4/13/05

QCG: SC42VT-050414AN-85708

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	1.9	0.5	0.14	ug/L	4/14/05	4/14/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/14/05	4/14/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	45	0.5	0.21	ug/L	4/14/05	4/14/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/14/05	4/14/05
CLP VOL	1,1-Dichloroethane	20	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	1,1-Dichloroethene	43	0.5	0.30	ug/L	4/14/05	4/14/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/14/05	4/14/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/14/05	4/14/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/14/05	4/14/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/14/05	4/14/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/14/05	4/14/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/14/05	4/14/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/14/05	4/14/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/14/05	4/14/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/14/05	4/14/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/14/05	4/14/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/14/05	4/14/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/14/05	4/14/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/14/05	4/14/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/14/05	4/14/05
CLP VOL	Chloroform	0.44 J	0.5	0.16	ug/L	4/14/05	4/14/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/14/05	4/14/05
CLP VOL	cis-1,2-Dichloroethene	340 E	0.5	0.16	ug/L	4/14/05	4/14/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/14/05	4/14/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/14/05	4/14/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/14/05	4/14/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/14/05	4/14/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0414N14  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deane Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990 86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WCPT-1021

Sample Collection Date: 4/13/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ASF: 47118

APPL ID: AX17486

QCG: \$C42VT-050414AN-85708

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	0.77	0.5	0.15	ug/L	4/14/05	4/14/05
CLP VOL	Toluene	0.23 J	0.5	0.17	ug/L	4/14/05	4/14/05
CLP VOL	trans-1,2-Dichloroethene	3.1	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/14/05	4/14/05
CLP VOL	Trichloroethene	1300 E	0.5	0.16	ug/L	4/14/05	4/14/05
CLP VOL	Vinyl Chloride	1.4	0.5	0.23	ug/L	4/14/05	4/14/05
CLP VOL	Surrogate Recovery (BFB)	107	75-125		%	4/14/05	4/14/05
CLP VOL	Surrogate Recovery (DCA)	107	62-139		%	4/14/05	4/14/05
CLP VOL	Surrogate Recovery (TOL)	105	75-125		%	4/14/05	4/14/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0414N14  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1890.86D WATS Bldg 83 Moffett Airfield

ARF: 47118

Sample ID: 86-WOPT-1021

APPL ID: AX17486

Sample Collection Date: 4/13/05

QCG: SC42VD-050415DN-85825

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	250	25	8.00	ug/L	4/17/05	4/17/05
CLP VOL	Trichloroethene	1200	25	8.00	ug/L	4/17/05	4/17/05
CLP VOL	Surrogate Recovery (BFB)	98.7	75-125		%	4/17/05	4/17/05
CLP VOL	Surrogate Recovery (DCA)	110	62-139		%	4/17/05	4/17/05
CLP VOL	Surrogate Recovery (TOL)	98.3	75-125		%	4/17/05	4/17/05

Run #: 0415N65  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 50  
Initials: LF

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

ARF: 47118

Sample ID: 86-WOPT-1028

APPL ID: AX17487

Sample Collection Date: 4/13/05

QCG: SC42VT-050414AN-85708

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/14/05	4/14/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/14/05	4/14/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	0.5	0.21	ug/L	4/14/05	4/14/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/14/05	4/14/05
CLP VOL	1,1-Dichloroethane	98	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	1,1-Dichloroethene	100 E	0.5	0.30	ug/L	4/14/05	4/14/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/14/05	4/14/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/14/05	4/14/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/14/05	4/14/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/14/05	4/14/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/14/05	4/14/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/14/05	4/14/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/14/05	4/14/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/14/05	4/14/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/14/05	4/14/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/14/05	4/14/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/14/05	4/14/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/14/05	4/14/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/14/05	4/14/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/14/05	4/14/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	4/14/05	4/14/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/14/05	4/14/05
CLP VOL	cis-1,2-Dichloroethene	860 E	0.5	0.16	ug/L	4/14/05	4/14/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/14/05	4/14/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/14/05	4/14/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/14/05	4/14/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/14/05	4/14/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0414N15  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

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## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

ARF: 47118

Sample ID: 86-WOPT-1028

APPL ID: AX17487

Sample Collection Date: 4/13/05

QCG: SC42VT-050414AN-85708

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	0.19 J	0.5	0.15	ug/L	4/14/05	4/14/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/14/05	4/14/05
CLP VOL	trans-1,2-Dichloroethene	5.5	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/14/05	4/14/05
CLP VOL	Trichloroethene	9.9	0.5	0.16	ug/L	4/14/05	4/14/05
CLP VOL	Vinyl Chloride	2.9	0.5	0.23	ug/L	4/14/05	4/14/05
CLP VOL	Surrogate Recovery (BFB)	109	75-125		%	4/14/05	4/14/05
CLP VOL	Surrogate Recovery (DCA)	105	62-139		%	4/14/05	4/14/05
CLP VOL	Surrogate Recovery (TOL)	98.4	75-125		%	4/14/05	4/14/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0414N15  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed 4/20/05 11:08:02 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.86D WATS Eldg 88 Moffett Airfield

ARF: 47118

Sample ID: 86-WOPT-1028

APPL ID: AX17487

Sample Collection Date: 4/13/05

QCG: \$C42VD-050415DN-85825

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1-Dichloroethene	65	10	6.00	ug/L	4/17/05	4/17/05
CLP VOL	cis-1,2-Dichloroethene	730	10	3.20	ug/L	4/17/05	4/17/05
CLP VOL	Surrogate Recovery (BFB)	103	75-125		%	4/17/05	4/17/05
CLP VOL	Surrogate Recovery (DCA)	113	62-139		%	4/17/05	4/17/05
CLP VOL	Surrogate Recovery (TOL)	98.7	75-125		%	4/17/05	4/17/05

Run #: 0415N66  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 20  
Initials: LF

Printed: 4/20/05 5:10:02 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990 86D WATS Bldg 88 Moffett Airfield

ARF: 47118

Sample ID: 66-WOPT-1029

APPL ID: AX17488

Sample Collection Date: 4/13/05

QCG: SC42VT-050414AN-85708

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	0.69	0.5	0.14	ug/L	4/14/05	4/14/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/14/05	4/14/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	3.8	0.5	0.21	ug/L	4/14/05	4/14/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/14/05	4/14/05
CLP VOL	1,1-Dichloroethane	10	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	1,1-Dichloroethene	22	0.5	0.30	ug/L	4/14/05	4/14/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/14/05	4/14/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/14/05	4/14/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/14/05	4/14/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/14/05	4/14/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/14/05	4/14/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/14/05	4/14/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/14/05	4/14/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/14/05	4/14/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/14/05	4/14/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/14/05	4/14/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/14/05	4/14/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/14/05	4/14/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/14/05	4/14/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/14/05	4/14/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	4/14/05	4/14/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/14/05	4/14/05
CLP VOL	cis-1,2-Dichloroethene	610 E	0.5	0.16	ug/L	4/14/05	4/14/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/14/05	4/14/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/14/05	4/14/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/14/05	4/14/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/14/05	4/14/05

E = The reported value exceeds linear range.

Run #: 0414N16  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:08:02 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

ARF: 47118

Sample ID: 86-WOPT-1029

APPL ID: AX17488

Sample Collection Date: 4/13/05

QCG: SC42VT-050414AN-85708

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	1.8	0.5	0.15	ug/L	4/14/05	4/14/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/14/05	4/14/05
CLP VOL	trans-1,2-Dichloroethene	4.8	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/14/05	4/14/05
CLP VOL	Trichloroethene	810 E	0.5	0.16	ug/L	4/14/05	4/14/05
CLP VOL	Vinyl Chloride	1.1	0.5	0.23	ug/L	4/14/05	4/14/05
CLP VOL	Surrogate Recovery (BFB)	103	75-125		%	4/14/05	4/14/05
CLP VOL	Surrogate Recovery (DCA)	112	62-139		%	4/14/05	4/14/05
CLP VOL	Surrogate Recovery (TOL)	100	75-125		%	4/14/05	4/14/05

E = The reported value exceeds linear range.

Run #: 0414N16  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:08:02 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 68 Moffett Airfield

Sample ID: 86-WOPT-1029

Sample Collection Date: 4/13/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47118

APPL ID: AX17488

QCG: SC42VD-050415DN-85825

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	520	10	3.20	ug/L	4/17/05	4/17/05
CLP VOL	Trichloroethene	540	10	3.20	ug/L	4/17/05	4/17/05
CLP VOL	Surrogate Recovery (BFB)	105	75-125		%	4/17/05	4/17/05
CLP VOL	Surrogate Recovery (DCA)	114	62-139		%	4/17/05	4/17/05
CLP VOL	Surrogate Recovery (TOL)	103	75-125		%	4/17/05	4/17/05

Run #: 0415N67  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 20  
Initials: LF

Printed: 4/20/05 5:10:02 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bierkowski

Project: 1990 86D WATS Bldg 88 McFett Airfield

Sample ID: 86-WOPT-1030

Sample Collection Date: 4/13/05

ARF: 47118

APPL ID: AX17489

CCG: \$C42VT-050414AN-85708

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	2.5	0.5	0.14	ug/L	4/14/05	4/14/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/14/05	4/14/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	6.9	0.5	0.21	ug/L	4/14/05	4/14/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/14/05	4/14/05
CLP VOL	1,1-Dichloroethane	7.3	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	1,1-Dichloroethene	13	0.5	0.30	ug/L	4/14/05	4/14/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/14/05	4/14/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/14/05	4/14/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/14/05	4/14/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/14/05	4/14/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/14/05	4/14/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/14/05	4/14/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/14/05	4/14/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/14/05	4/14/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/14/05	4/14/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/14/05	4/14/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/14/05	4/14/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/14/05	4/14/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/14/05	4/14/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/14/05	4/14/05
CLP VOL	Chloroform	0.56	0.5	0.16	ug/L	4/14/05	4/14/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/14/05	4/14/05
CLP VOL	cis-1,2-Dichloroethene	340 E	0.5	0.16	ug/L	4/14/05	4/14/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/14/05	4/14/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/14/05	4/14/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/14/05	4/14/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/14/05	4/14/05

E = The reported value exceeds linear range.

Run #: 0414N17  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:08:02 AM  
APPL-F1-SC-MCRes:MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bierkowski

Project: 1990.86D WATS Bldg 68 Moffett Airfield

ARF: 47118

Sample ID: 86-WOPT-1030

APPL ID: AX17489

Sample Collection Date: 4/13/05

QCG: SC42VT-050414AN-85708

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	1.7	0.5	0.15	ug/L	4/14/05	4/14/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/14/05	4/14/05
CLP VOL	trans-1,2-Dichloroethene	4.1	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/14/05	4/14/05
CLP VOL	Trichloroethene	690 E	0.5	0.16	ug/L	4/14/05	4/14/05
CLP VOL	Vinyl Chloride	Not detected	0.5	0.23	ug/L	4/14/05	4/14/05
CLP VOL	Surrogate Recovery (BFB)	101	75-125		%	4/14/05	4/14/05
CLP VOL	Surrogate Recovery (DCA)	111	62-139		%	4/14/05	4/14/05
CLP VOL	Surrogate Recovery (TOL)	97.1	75-125		%	4/14/05	4/14/05

E = The reported value exceeds linear range.

Run #: 0414N17  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed 4/20/05 11:08:02 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1030

Sample Collection Date: 4/13/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47118

APPL ID: AX17489

QCG: SC42VD-050415DN-85825

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	270	10	3.20	ug/L	4/17/05	4/17/05
CLP VOL	Trichloroethene	540	10	3.20	ug/L	4/17/05	4/17/05
CLP VOL	Surrogate Recovery (BFB)	101	75-125		%	4/17/05	4/17/05
CLP VOL	Surrogate Recovery (DCA)	115	62-139		%	4/17/05	4/17/05
CLP VOL	Surrogate Recovery (TOL)	94.1	75-125		%	4/17/05	4/17/05

Run #: 0415N68  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 20  
Initials: LF

Printed: 4/20/05 5:10:02 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech F.W., Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

ARF: 47118

Sample ID: 86-WOPT-1031

APPL ID: AX17490

Sample Collection Date: 4/13/05

CCG: SC42VT-050414AN-85708

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	1.9	0.5	0.14	ug/L	4/14/05	4/14/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/14/05	4/14/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	25	0.5	0.21	ug/L	4/14/05	4/14/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/14/05	4/14/05
CLP VOL	1,1-Dichloroethane	11	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	1,1-Dichloroethene	25	0.5	0.30	ug/L	4/14/05	4/14/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/14/05	4/14/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/14/05	4/14/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/14/05	4/14/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/14/05	4/14/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/14/05	4/14/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/14/05	4/14/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/14/05	4/14/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/14/05	4/14/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/14/05	4/14/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/14/05	4/14/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/14/05	4/14/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/14/05	4/14/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/14/05	4/14/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/14/05	4/14/05
CLP VOL	Chloroform	0.33 J	0.5	0.16	ug/L	4/14/05	4/14/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/14/05	4/14/05
CLP VOL	cis-1,2-Dichloroethene	210 E	0.5	0.16	ug/L	4/14/05	4/14/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/14/05	4/14/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/14/05	4/14/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/14/05	4/14/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/14/05	4/14/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0414N18  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:08:02 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990 86D WATS Bldg 88 Moffett Airfield

ARF: 47118

Sample ID: 86-WOPT-1031

APPL ID: AX17490

Sample Collection Date: 4/13/05

QCG: SC42VT-050414AN-85708

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	0.25 J	0.5	0.15	ug/L	4/14/05	4/14/05
CLP VOL	Toluene	0.26 J	0.5	0.17	ug/L	4/14/05	4/14/05
CLP VOL	trans-1,2-Dichloroethene	2.2	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/14/05	4/14/05
CLP VOL	Trichloroethene	1000 E	0.5	0.16	ug/L	4/14/05	4/14/05
CLP VOL	Vinyl Chloride	0.76	0.5	0.23	ug/L	4/14/05	4/14/05
CLP VOL	Surrogate Recovery (BFB)	107	75-125		%	4/14/05	4/14/05
CLP VOL	Surrogate Recovery (DCA)	106	62-139		%	4/14/05	4/14/05
CLP VOL	Surrogate Recovery (TOL)	104	75-125		%	4/14/05	4/14/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0414N18  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:08:02 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Eienkowski  
Project: 1990.86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1031

Sample Collection Date: 4/13/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47118

APPL ID: AX17490

QCG: SC42VD-050415DN-85825

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	150	25	8.00	ug/L	4/17/05	4/17/05
CLP VOL	Trichloroethene	840	25	8.00	ug/L	4/17/05	4/17/05
CLP VOL	Surrogate Recovery (BFE)	104	75-125		%	4/17/05	4/17/05
CLP VOL	Surrogate Recovery (DCA)	111	62-139		%	4/17/05	4/17/05
CLP VOL	Surrogate Recovery (TOL)	103	75-125		%	4/17/05	4/17/05

Run #: 0415N69  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 50  
Initials: LF

Printed: 4/20/05 5:10:02 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1032

Sample Collection Date: 4/13/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47118

APPL ID: AX17491

QCQ: SC42VT-050414AN-85708

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	1.8	0.5	0.14	ug/L	4/14/05	4/14/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/14/05	4/14/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	45	0.5	0.21	ug/L	4/14/05	4/14/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/14/05	4/14/05
CLP VOL	1,1-Dichloroethane	11	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	1,1-Dichloroethene	30	0.5	0.30	ug/L	4/14/05	4/14/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/14/05	4/14/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/14/05	4/14/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/14/05	4/14/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/14/05	4/14/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/14/05	4/14/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/14/05	4/14/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/14/05	4/14/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/14/05	4/14/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/14/05	4/14/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/14/05	4/14/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/14/05	4/14/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/14/05	4/14/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/14/05	4/14/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/14/05	4/14/05
CLP VOL	Chloroform	0.32 J	0.5	0.16	ug/L	4/14/05	4/14/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/14/05	4/14/05
CLP VOL	cis-1,2-Dichloroethene	160 E	0.5	0.16	ug/L	4/14/05	4/14/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/14/05	4/14/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/14/05	4/14/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/14/05	4/14/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/14/05	4/14/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0414N19  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:08:02 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 68 Moffett Airfield

Sample ID: 86-WOPT-1032

Sample Collection Date: 4/13/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47118

APPL ID: AX17491

QCG: SC42VT-050414AN-85708

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	0.41 J	0.5	0.15	ug/L	4/14/05	4/14/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/14/05	4/14/05
CLP VOL	trans-1,2-Dichloroethene	1.1	0.5	0.19	ug/L	4/14/05	4/14/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/14/05	4/14/05
CLP VOL	Trichloroethene	1300 E	0.5	0.16	ug/L	4/14/05	4/14/05
CLP VOL	Vinyl Chloride	0.77	0.5	0.23	ug/L	4/14/05	4/14/05
CLP VOL	Surrogate Recovery (BFB)	101	75-125		%	4/14/05	4/14/05
CLP VOL	Surrogate Recovery (DCA)	101	62-139		%	4/14/05	4/14/05
CLP VOL	Surrogate Recovery (TOL)	103	75-125		%	4/14/05	4/14/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0414N19  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:08:02 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990.86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1032

Sample Collection Date: 4/13/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47118

APPL ID: AX17491

QCG: SC42VD-050415DN-85825

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	130	25	8.00	ug/L	4/17/05	4/17/05
CLP VOL	Trichloroethene	1500	25	8.00	ug/L	4/17/05	4/17/05
CLP VOL	Surrogate Recovery (BFB)	106	75-125		%	4/17/05	4/17/05
CLP VOL	Surrogate Recovery (DCA)	121	62-139		%	4/17/05	4/17/05
CLP VOL	Surrogate Recovery (TOL)	100	75-125		%	4/17/05	4/17/05

Run #: 0415N70  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 50  
Initials: LF

Printed: 4/20/05 5:10:02 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990 86D WATS Bldg 88 Moffett Airfield

ARF: 47118

Sample ID: 86-WOPT-1022

APPL ID: AX17492

Sample Collection Date: 4/13/05

QCG: S86TTS-050413AC1-8567

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 18.7 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	1.0	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.5	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.59	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,1-Dichloroethane	2.4 J	6	1.4	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,1-Dichloroethene	6.9	6	0.97	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.89	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.76	ug/Kg	4/14/05	4/14/05
EPA 8260B	2-Butanone	Not detected	62	0.87	ug/Kg	4/14/05	4/14/05
EPA 8260B	2-Hexanone	Not detected	62	0.20	ug/Kg	4/14/05	4/14/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	62	1.1	ug/Kg	4/14/05	4/14/05
EPA 8260B	Acetone	Not detected	120	3.4	ug/Kg	4/14/05	4/14/05
EPA 8260B	Benzene	Not detected	6	0.77	ug/Kg	4/14/05	4/14/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.85	ug/Kg	4/14/05	4/14/05
EPA 8260B	Bromoform	Not detected	6	0.98	ug/Kg	4/14/05	4/14/05
EPA 8260B	Bromomethane	Not detected	12	2.0	ug/Kg	4/14/05	4/14/05
EPA 8260B	Carbon disulfide	Not detected	6	1.3	ug/Kg	4/14/05	4/14/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.98	ug/Kg	4/14/05	4/14/05
EPA 8260B	Chlorobenzene	Not detected	6	0.80	ug/Kg	4/14/05	4/14/05
EPA 8260B	Chloroethane	Not detected	6	1.9	ug/Kg	4/14/05	4/14/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	4/14/05	4/14/05
EPA 8260B	Chloromethane	Not detected	6	2.2	ug/Kg	4/14/05	4/14/05
EPA 8260B	cis-1,2-Dichloroethene	540 E	6	1.3	ug/Kg	4/14/05	4/14/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.58	ug/Kg	4/14/05	4/14/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.0	ug/Kg	4/14/05	4/14/05
EPA 8260B	Ethylbenzene	Not detected	6	0.79	ug/Kg	4/14/05	4/14/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/14/05	4/14/05
EPA 8260B	Methylene chloride	Not detected	62	5.6	ug/Kg	4/14/05	4/14/05
EPA 8260B	Styrene	Not detected	6	0.85	ug/Kg	4/14/05	4/14/05
EPA 8260B	Tetrachloroethene	31	6	0.66	ug/Kg	4/14/05	4/14/05
EPA 8260B	Toluene	Not detected	6	0.80	ug/Kg	4/14/05	4/14/05
EPA 8260B	trans-1,2-Dichloroethene	14	6	1.7	ug/Kg	4/14/05	4/14/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0413C12  
Instrument: Chico  
Sequence: C650413  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:08:02 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

ARF: 47118

Sample ID: 86-WOPT-1022

APPL ID: AX17492

Sample Collection Date: 4/13/05

QCG: \$86TTS-050413AC1-8567

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.53	ug/Kg	4/14/05	4/14/05
EPA 8260B	Trichloroethene	720 E	6	0.87	ug/Kg	4/14/05	4/14/05
EPA 8260B	Vinyl Acetate	Not detected	62	1.2	ug/Kg	4/14/05	4/14/05
EPA 8260B	Vinyl chloride	Not detected	6	2.1	ug/Kg	4/14/05	4/14/05
EPA 8260B	Xylenes	Not detected	18	0.84	ug/Kg	4/14/05	4/14/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	84.2	52-149		%	4/14/05	4/14/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	96.2	65-135		%	4/14/05	4/14/05
EPA 8260B	Surrogate recovery: Toluene-d8	91.0	65-135		%	4/14/05	4/14/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0413C12  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed 4/20/05 11:08:02 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1022

Sample Collection Date: 4/13/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47116

APPL ID: AX17462

QCG: \$86TTD-050417BM-86216

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 18.7 Percent Moisture.)							
EPA 8260B-	cis-1,2-Dichloroethene	520	28	9.8	ug/Kg	4/18/05	4/18/05
EPA 8260B-	Trichloroethene	1200	31	9.8	ug/Kg	4/18/05	4/18/05
EPA 8260B-	Surrogate recovery: 1,2-Dichloroethane	109	52-149		%	4/18/05	4/18/05
EPA 8260B-	Surrogate recovery: 4-Bromofluorobenz	93.8	65-135		%	4/18/05	4/18/05
EPA 8260B-	Surrogate recovery: Toluene-d8	98.9	65-135		%	4/18/05	4/18/05

Run #: 0417M32  
Instrument: Max  
Sequence: M050414  
Dilution Factor: 50  
Initials: LF

Printed: 5/10/05 9:20:58 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



# EPA 8260B

Tetra Tech FW, inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.85D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1023

Sample Collection Date: 4/13/05

ARF: 47118

APPL ID: AX17493

QCG: \$86TTS-050413AC1-8567

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 18.8 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	1.0	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.5	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.59	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,1-Dichloroethane	Not detected	6	1.4	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,1-Dichloroethene	Not detected	6	0.97	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.89	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.76	ug/Kg	4/14/05	4/14/05
EPA 8260B	2-Butanone	Not detected	62	0.87	ug/Kg	4/14/05	4/14/05
EPA 8260B	2-Hexanone	Not detected	62	0.20	ug/Kg	4/14/05	4/14/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	62	1.1	ug/Kg	4/14/05	4/14/05
EPA 8260B	Acetone	Not detected	120	3.4	ug/Kg	4/14/05	4/14/05
EPA 8260B	Benzene	Not detected	6	0.78	ug/Kg	4/14/05	4/14/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.85	ug/Kg	4/14/05	4/14/05
EPA 8260B	Bromoform	Not detected	6	0.99	ug/Kg	4/14/05	4/14/05
EPA 8260B	Bromomethane	Not detected	12	2.0	ug/Kg	4/14/05	4/14/05
EPA 8260B	Carbon disulfide	Not detected	6	1.3	ug/Kg	4/14/05	4/14/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.99	ug/Kg	4/14/05	4/14/05
EPA 8260B	Chlorobenzene	Not detected	6	0.60	ug/Kg	4/14/05	4/14/05
EPA 8260B	Chloroethane	Not detected	6	1.9	ug/Kg	4/14/05	4/14/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	4/14/05	4/14/05
EPA 8260B	Chloromethane	Not detected	6	2.2	ug/Kg	4/14/05	4/14/05
EPA 8260B	cis-1,2-Dichloroethene	22	6	1.3	ug/Kg	4/14/05	4/14/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.58	ug/Kg	4/14/05	4/14/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.0	ug/Kg	4/14/05	4/14/05
EPA 8260B	Ethylbenzene	Not detected	6	0.79	ug/Kg	4/14/05	4/14/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/14/05	4/14/05
EPA 8260B	Methylene chloride	Not detected	62	5.6	ug/Kg	4/14/05	4/14/05
EPA 8260B	Styrene	Not detected	6	0.85	ug/Kg	4/14/05	4/14/05
EPA 8260B	Tetrachloroethene	0.99 J	6	0.67	ug/Kg	4/14/05	4/14/05
EPA 8260B	Toluene	Not detected	6	0.80	ug/Kg	4/14/05	4/14/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.7	ug/Kg	4/14/05	4/14/05

J = Estimated value, below quantitation limit.

Run #: 0413C13  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:08:02 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1999.86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1023

Sample Collection Date: 4/13/05

ARF: 47118

APPL ID: AX17493

QCG: \$86TTS-050413AC1-8567

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.53	ug/Kg	4/14/05	4/14/05
EPA 8260B	Trichloroethene	130	6	0.87	ug/Kg	4/14/05	4/14/05
EPA 8260B	Vinyl Acetate	Not detected	62	1.2	ug/Kg	4/14/05	4/14/05
EPA 8260B	Vinyl chloride	Not detected	6	2.1	ug/Kg	4/14/05	4/14/05
EPA 8260B	Xylenes	Not detected	18	0.84	ug/Kg	4/14/05	4/14/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	78.5	52-149		%	4/14/05	4/14/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	94.3	65-135		%	4/14/05	4/14/05
EPA 8260B	Surrogate recovery: Toluene-d8	86.5	65-135		%	4/14/05	4/14/05

J = Estimated value, below quantitation limit.

Run #: 0413C13  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:08:02 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

ARF: 47118

Sample ID: 86-WOPT-1024

APPL ID: AX17494

Sample Collection Date: 4/13/05

CCG: S86TTS-050413AC1-8567

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 20.1 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	1.0	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.6	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.60	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,1-Dichloroethane	Not detected	6	1.4	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,1-Dichloroethene	1.5 J	6	0.99	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.90	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.78	ug/Kg	4/14/05	4/14/05
EPA 8260B	2-Butanone	Not detected	63	0.89	ug/Kg	4/14/05	4/14/05
EPA 8260B	2-Hexanone	Not detected	63	0.20	ug/Kg	4/14/05	4/14/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	63	1.2	ug/Kg	4/14/05	4/14/05
EPA 8260B	Acetone	Not detected	130	3.5	ug/Kg	4/14/05	4/14/05
EPA 8260B	Benzene	Not detected	6	0.79	ug/Kg	4/14/05	4/14/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.86	ug/Kg	4/14/05	4/14/05
EPA 8260B	Bromoform	Not detected	6	1.0	ug/Kg	4/14/05	4/14/05
EPA 8260B	Bromomethane	Not detected	13	2.0	ug/Kg	4/14/05	4/14/05
EPA 8260B	Carbon disulfide	Not detected	6	1.4	ug/Kg	4/14/05	4/14/05
EPA 8260B	Carbon tetrachloride	Not detected	6	1.0	ug/Kg	4/14/05	4/14/05
EPA 8260B	Chlorobenzene	Not detected	6	0.61	ug/Kg	4/14/05	4/14/05
EPA 8260B	Chloroethane	Not detected	6	1.9	ug/Kg	4/14/05	4/14/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	4/14/05	4/14/05
EPA 8260B	Chloromethane	Not detected	6	2.3	ug/Kg	4/14/05	4/14/05
EPA 8260B	cis-1,2-Dichloroethene	44	6	1.3	ug/Kg	4/14/05	4/14/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.59	ug/Kg	4/14/05	4/14/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.1	ug/Kg	4/14/05	4/14/05
EPA 8260B	Ethylbenzene	Not detected	6	0.80	ug/Kg	4/14/05	4/14/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/14/05	4/14/05
EPA 8260B	Methylene chloride	Not detected	63	5.7	ug/Kg	4/14/05	4/14/05
EPA 8260B	Styrene	Not detected	6	0.86	ug/Kg	4/14/05	4/14/05
EPA 8260B	Tetrachloroethene	2.4 J	6	0.68	ug/Kg	4/14/05	4/14/05
EPA 8260B	Toluene	Not detected	6	0.81	ug/Kg	4/14/05	4/14/05
EPA 8260B	trans-1,2-Dichloroethene	1.8 J	6	1.7	ug/Kg	4/14/05	4/14/05

J = Estimated value, below quantitation limit.

Run #: 0413C14  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11 08 02 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech: FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

AFPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski  
Project: 1990.86D WATS Bidg 88 Moffett Airfield

ARF: 47118

**Sample ID: 86-WOPT-1024**

**APPL ID: AX17494**

Sample Collection Date: 4/13/05

QCG: S86TTS-050413AC1-8567

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropane	Not detected	6	0.54	ug/Kg	4/14/05	4/14/05
EPA 8260B	Trichloroethene	180	6	0.89	ug/Kg	4/14/05	4/14/05
EPA 8260B	Vinyl Acetate	Not detected	63	1.3	ug/Kg	4/14/05	4/14/05
EPA 8260B	Vinyl chloride	Not detected	6	2.1	ug/Kg	4/14/05	4/14/05
EPA 8260B	Xylenes	Not detected	19	0.85	ug/Kg	4/14/05	4/14/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	77.7	52-149		%	4/14/05	4/14/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	95.8	65-135		%	4/14/05	4/14/05
EPA 8260B	Surrogate recovery: Toluene-d8	85.6	65-135		%	4/14/05	4/14/05

J = Estimated value, below quantitation limit.

Run #: 0413C14  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:08:02 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Blenkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

ARF: 47118

Sample ID: 86-WOPT-1025

APPL ID: AX17495

Sample Collection Date: 4/13/05

QCG: S86TTS-050413AC1-8567

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 17.4 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	0.98	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.5	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.58	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,1-Dichloroethane	5.5 J	6	1.4	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,1-Dichloroethene	10.0	6	0.96	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.87	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.75	ug/Kg	4/14/05	4/14/05
EPA 8260B	2-Butanone	Not detected	61	0.86	ug/Kg	4/14/05	4/14/05
EPA 8260B	2-Hexanone	Not detected	61	0.19	ug/Kg	4/14/05	4/14/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	61	1.1	ug/Kg	4/14/05	4/14/05
EPA 8260B	Acetone	Not detected	120	3.4	ug/Kg	4/14/05	4/14/05
EPA 8260B	Benzene	Not detected	6	0.76	ug/Kg	4/14/05	4/14/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.84	ug/Kg	4/14/05	4/14/05
EPA 8260B	Bromoform	Not detected	6	0.97	ug/Kg	4/14/05	4/14/05
EPA 8260B	Bromomethane	17	12	1.9	ug/Kg	4/14/05	4/14/05
EPA 8260B	Carbon disulfide	Not detected	6	1.3	ug/Kg	4/14/05	4/14/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.97	ug/Kg	4/14/05	4/14/05
EPA 8260B	Chlorobenzene	Not detected	6	0.59	ug/Kg	4/14/05	4/14/05
EPA 8260B	Chloroethane	Not detected	6	1.9	ug/Kg	4/14/05	4/14/05
EPA 8260B	Chloroform	Not detected	6	1.7	ug/Kg	4/14/05	4/14/05
EPA 8260B	Chloromethane	Not detected	6	2.2	ug/Kg	4/14/05	4/14/05
EPA 8260B	cis-1,2-Dichloroethene	100	6	1.3	ug/Kg	4/14/05	4/14/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.57	ug/Kg	4/14/05	4/14/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.0	ug/Kg	4/14/05	4/14/05
EPA 8260B	Ethylbenzene	Not detected	6	0.77	ug/Kg	4/14/05	4/14/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/14/05	4/14/05
EPA 8260B	Methylene chloride	Not detected	61	5.5	ug/Kg	4/14/05	4/14/05
EPA 8260B	Styrene	Not detected	6	0.84	ug/Kg	4/14/05	4/14/05
EPA 8260B	Tetrachloroethene	1.0 J	6	0.65	ug/Kg	4/14/05	4/14/05
EPA 8260B	Toluene	Not detected	6	0.79	ug/Kg	4/14/05	4/14/05
EPA 8260B	trans-1,2-Dichloroethene	2.6 J	6	1.6	ug/Kg	4/14/05	4/14/05

J = Estimated value, below quantitation limit.

Run #: 0413C15  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed 4/20/05 11:08:02 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990 86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1025

Sample Collection Date: 4/13/05

ARF: 47118

APPL ID: AX17495

QCG: \$86TTS-050413AC1-8567

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.52	ug/Kg	4/14/05	4/14/05
EPA 8260B	Trichloroethene	430	6	0.86	ug/Kg	4/14/05	4/14/05
EPA 8260B	Vinyl Acetate	Not detected	61	1.2	ug/Kg	4/14/05	4/14/05
EPA 8260B	Vinyl chloride	Not detected	6	2.0	ug/Kg	4/14/05	4/14/05
EPA 8260B	Xylenes	Not detected	18	0.82	ug/Kg	4/14/05	4/14/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	80.4	52-149		%	4/14/05	4/14/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	90.3	65-135		%	4/14/05	4/14/05
EPA 8260B	Surrogate recovery: Toluene-d8	83.2	65-135		%	4/14/05	4/14/05

J = Estimated value, below quantitation limit.

Run #: 0413C15  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:08 03 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

ARF: 47118

Sample ID: 86-WOPT-1025

APPL ID: AX17496

Sample Collection Date: 4/13/05

CCG: S86TTS-050413BC-85701

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 19.5 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	1.0	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.5	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.60	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,1-Dichloroethane	3.5 J	6	1.4	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,1-Dichloroethene	9.3	6	0.98	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.89	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.77	ug/Kg	4/14/05	4/14/05
EPA 8260B	2-Butanone	Not detected	62	0.88	ug/Kg	4/14/05	4/14/05
EPA 8260B	2-Hexanone	Not detected	62	0.20	ug/Kg	4/14/05	4/14/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	62	1.2	ug/Kg	4/14/05	4/14/05
EPA 8260B	Acetone	Not detected	120	3.5	ug/Kg	4/14/05	4/14/05
EPA 8260B	Benzene	Not detected	6	0.78	ug/Kg	4/14/05	4/14/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.86	ug/Kg	4/14/05	4/14/05
EPA 8260B	Bromoform	Not detected	6	0.99	ug/Kg	4/14/05	4/14/05
EPA 8260B	Bromomethane	Not detected	12	2.0	ug/Kg	4/14/05	4/14/05
EPA 8260B	Carbon disulfide	Not detected	6	1.3	ug/Kg	4/14/05	4/14/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.99	ug/Kg	4/14/05	4/14/05
EPA 8260B	Chlorobenzene	Not detected	6	0.61	ug/Kg	4/14/05	4/14/05
EPA 8260B	Chloroethane	Not detected	6	1.9	ug/Kg	4/14/05	4/14/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	4/14/05	4/14/05
EPA 8260B	Chloromethane	Not detected	6	2.3	ug/Kg	4/14/05	4/14/05
EPA 8260B	cis-1,2-Dichloroethene	81	6	1.3	ug/Kg	4/14/05	4/14/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.58	ug/Kg	4/14/05	4/14/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.1	ug/Kg	4/14/05	4/14/05
EPA 8260B	Ethylbenzene	Not detected	6	0.80	ug/Kg	4/14/05	4/14/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/14/05	4/14/05
EPA 8260B	Methylene chloride	Not detected	62	5.7	ug/Kg	4/14/05	4/14/05
EPA 8260B	Styrene	Not detected	6	0.86	ug/Kg	4/14/05	4/14/05
EPA 8260B	Tetrachloroethene	Not detected	6	0.67	ug/Kg	4/14/05	4/14/05
EPA 8260B	Toluene	Not detected	6	0.81	ug/Kg	4/14/05	4/14/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.7	ug/Kg	4/14/05	4/14/05

J = Estimated value, below quantitation limit  
E = The reported value exceeds linear range.

Run #: 0413C23  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed 4/26/05 11:08:03 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1590.86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1026

Sample Collection Date: 4/13/05

ARF: 47118

APPL ID: AX17496

QCG: \$86TTS-050413BC-85701

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.53	ug/Kg	4/14/05	4/14/05
EPA 8260B	Trichloroethene	680 E	6	0.88	ug/Kg	4/14/05	4/14/05
EPA 8260B	Vinyl Acetate	Not detected	62	1.2	ug/Kg	4/14/05	4/14/05
EPA 8260B	Vinyl chloride	Not detected	6	2.1	ug/Kg	4/14/05	4/14/05
EPA 8260B	Xylenes	Not detected	19	0.84	ug/Kg	4/14/05	4/14/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	82.3	52-149		%	4/14/05	4/14/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	89.9	65-135		%	4/14/05	4/14/05
EPA 8260B	Surrogate recovery: Toluene-d8	87.0	65-135		%	4/14/05	4/14/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0413C23  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:08 03 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1026

Sample Collection Date: 4/13/05

ARF: 47118

APPL ID: AX17496

QCQ: \$86TTD-050417BM-86216

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 19.5 Percent Moisture.)							
EPA 8260B-	Trichloroethene	500	31	9.9	ug/Kg	4/18/05	4/18/05
EPA 8260B-	Surrogate recovery: 1,2-Dichloroethane	102	52-149		%	4/18/05	4/18/05
EPA 8260B-	Surrogate recovery: 4-Bromofluorobenz	92.7	65-135		%	4/18/05	4/18/05
EPA 8260B-	Surrogate recovery: Toluene-d8	100	65-135		%	4/18/05	4/18/05

Run #: 0417M33  
Instrument: Max  
Sequence: M050414  
Dilution Factor: 50  
Initials: LF

Printed: 4/28/05 7:08 56 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1027

Sample Collection Date: 4/13/05

APPL Inc.

4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47118

APPL ID: AX17497

QCG: \$86TTW-050413BM-8567

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/14/05	4/14/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/14/05	4/14/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/14/05	4/14/05
EPA 8260B	1,1-Dichloroethane	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05
EPA 8260B	1,1-Dichloroethene	Not detected	0.5	0.30	ug/L	4/14/05	4/14/05
EPA 8260B	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/14/05	4/14/05
EPA 8260B	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/14/05	4/14/05
EPA 8260B	2-Butanone	Not detected	5	0.6	ug/L	4/14/05	4/14/05
EPA 8260B	2-Hexanone	Not detected	5	0.92	ug/L	4/14/05	4/14/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/14/05	4/14/05
EPA 8260B	Acetone	Not detected	5	0.95	ug/L	4/14/05	4/14/05
EPA 8260B	Benzene	Not detected	0.5	0.16	ug/L	4/14/05	4/14/05
EPA 8260B	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/14/05	4/14/05
EPA 8260B	Bromoform	Not detected	0.5	0.14	ug/L	4/14/05	4/14/05
EPA 8260B	Bromomethane	Not detected	1	0.24	ug/L	4/14/05	4/14/05
EPA 8260B	Carbon disulfide	Not detected	0.5	0.2	ug/L	4/14/05	4/14/05
EPA 8260B	Carbon tetrachloride	Not detected	0.5	0.10	ug/L	4/14/05	4/14/05
EPA 8260B	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/14/05	4/14/05
EPA 8260B	Chloroethane	Not detected	0.5	0.21	ug/L	4/14/05	4/14/05
EPA 8260B	Chloroform	Not detected	0.5	0.16	ug/L	4/14/05	4/14/05
EPA 8260B	Chloromethane	Not detected	0.5	0.31	ug/L	4/14/05	4/14/05
EPA 8260B	cis-1,2-Dichloroethene	Not detected	0.5	0.16	ug/L	4/14/05	4/14/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/14/05	4/14/05
EPA 8260B	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05
EPA 8260B	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/14/05	4/14/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05
EPA 8260B	Methylene chloride	Not detected	5	0.35	ug/L	4/14/05	4/14/05
EPA 8260B	Styrene	Not detected	0.5	0.25	ug/L	4/14/05	4/14/05
EPA 8260B	Tetrachloroethene	Not detected	0.5	0.15	ug/L	4/14/05	4/14/05
EPA 8260B	Toluene	Not detected	0.5	0.17	ug/L	4/14/05	4/14/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	0.5	0.19	ug/L	4/14/05	4/14/05

Run #: 0413M35

Instrument: Max

Sequence: M050411

Dilution Factor: 1

Initials: LF

Printed: 4/20/05 11:08:03 AM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Blenkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1027

Sample Collection Date: 4/13/05

ARF: 47118

APPL ID: AX17497

QCG: S86TTW-050413BM-8567

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/14/05	4/14/05
EPA 8260B	Trichloroethene	Not detected	0.5	0.16	ug/L	4/14/05	4/14/05
EPA 8260B	Vinyl Acetate	Not detected	5	0.31	ug/L	4/14/05	4/14/05
EPA 8260B	Vinyl chloride	Not detected	0.5	0.23	ug/L	4/14/05	4/14/05
EPA 8260B	Xylenes	Not detected	1.5	0.19	ug/L	4/14/05	4/14/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	98.7	62-139		%	4/14/05	4/14/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	91.4	75-125		%	4/14/05	4/14/05
EPA 8260B	Surrogate recovery: Toluene-d8	95.6	75-125		%	4/14/05	4/14/05

Run #: 0413M35

Instrument: Max

Sequence: M050411

Dilution Factor: 1

Initials: LF

Printed: 4/20/05 11:08:03 AM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-516

Sample Collection Date: 4/13/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47118

APPL ID: AX17465

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	398	25	0.14	mg/L	4/19/05	4/22/05
6010B	Calcium (Ca)	379 E	5	0.0272	mg/L	4/19/05	4/21/05
6010B	Iron (Fe)	26.1	0.1	0.0258	mg/L	4/19/05	4/21/05
6010B	Magnesium (Mg)	119	25	0.065	mg/L	4/19/05	4/22/05
6010B	Magnesium (Mg)	116 E	5	0.0129	mg/L	4/19/05	4/21/05
6010B	Potassium (K)	8.8	5	0.0995	mg/L	4/19/05	4/21/05
6010B	Sodium (Na)	45.7	5	0.1111	mg/L	4/19/05	4/21/05

E = The reported value exceeds linear range.

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski  
Project: 1990.86D WATS Bldg 88 Moffett Airfield

ARF: 47118

Sample ID: 86-WOPT-517

APPL ID: AX17466

Sample Collection Date: 4/13/05

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	471	25	0.14	mg/L	4/19/05	4/22/05
6010B	Calcium (Ca)	423 E	5	0.0272	mg/L	4/19/05	4/21/05
6010B	Iron (Fe)	65.0	0.50	0.13	mg/L	4/19/05	4/22/05
6010B	Iron (Fe)	56.5 E	0.1	0.0258	mg/L	4/19/05	4/21/05
6010B	Magnesium (Mg)	89.5	5	0.0129	mg/L	4/19/05	4/21/05
6010B	Potassium (K)	4.9 J	5	0.0995	mg/L	4/19/05	4/21/05
6010B	Sodium (Na)	40.6	5	0.1111	mg/L	4/19/05	4/21/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Printed: 4/26/05 2:45 05 PM

<sup>2</sup>L-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-518

Sample Collection Date: 4/13/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47118

APPL ID: AX17467

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	408	25	0.14	mg/L	4/19/05	4/22/05
6010B	Calcium (Ca)	374 E	5	0.0272	mg/L	4/19/05	4/21/05
6010B	Iron (Fe)	29.1	0.1	0.0258	mg/L	4/19/05	4/21/05
6010B	Magnesium (Mg)	109	25	0.065	mg/L	4/19/05	4/22/05
6010B	Magnesium (Mg)	102 E	5	0.0129	mg/L	4/19/05	4/21/05
6010B	Potassium (K)	6.6	5	0.0995	mg/L	4/19/05	4/21/05
6010B	Sodium (Na)	43.9	5	0.1111	mg/L	4/19/05	4/21/05

E = The reported value exceeds linear range.

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-519

Sample Collection Date: 4/13/05

ARF: 47118

APPL ID: AX17468

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	361	25	0.14	mg/L	4/19/05	4/22/05
6010B	Calcium (Ca)	346 E	5	0.0272	mg/L	4/19/05	4/21/05
6010B	Iron (Fe)	18.3	0.1	0.0258	mg/L	4/19/05	4/21/05
6010B	Magnesium (Mg)	93.4	5	0.0129	mg/L	4/19/05	4/21/05
6010B	Potassium (K)	5.5	5	0.0995	mg/L	4/19/05	4/21/05
6010B	Sodium (Na)	42.5	5	0.1111	mg/L	4/19/05	4/21/05

E = The reported value exceeds linear range.

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L-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-520

Sample Collection Date: 4/13/05

ARF: 47118

APPL ID: AX17469

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	489	25	0.14	mg/L	4/19/05	4/22/05
6010B	Calcium (Ca)	456 E	5	0.0272	mg/L	4/19/05	4/21/05
6010B	Iron (Fe)	19.7	0.1	0.0258	mg/L	4/19/05	4/21/05
6010B	Magnesium (Mg)	96.0	5	0.0129	mg/L	4/19/05	4/21/05
6010B	Potassium (K)	7.8	5	0.0995	mg/L	4/19/05	4/21/05
6010B	Sodium (Na)	41.5	5	0.1111	mg/L	4/19/05	4/21/05

E = The reported value exceeds linear range.



## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-521

Sample Collection Date: 4/13/05

ARF: 47118

APPL ID: AX17470

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	788	50	0.27	mg/L	4/19/05	4/23/05
6010B	Calcium (Ca)	677 E	5	0.0272	mg/L	4/19/05	4/21/05
6010B	Iron (Fe)	12.5	0.1	0.0258	mg/L	4/19/05	4/21/05
6010B	Magnesium (Mg)	125	25	0.065	mg/L	4/19/05	4/22/05
6010B	Magnesium (Mg)	116 E	5	0.0129	mg/L	4/19/05	4/21/05
6010B	Potassium (K)	9.2	5	0.0995	mg/L	4/19/05	4/21/05
6010B	Sodium (Na)	43.1	5	0.1111	mg/L	4/19/05	4/21/05

E = The reported value exceeds linear range.

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L-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski  
Project: 1990.86D WATS Bldg 88 Moffett Airfield  
Sample ID: 86-WOPT-529  
Sample Collection Date: 4/13/05

ARF: 47118  
APPL ID: AX17478

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	705	50	0.27			
6010B	Calcium (Ca)	610 E	5	0.0272	mg/L	4/19/05	4/23/05
6010B	Iron (Fe)	21.1	0.1	0.0258	mg/L	4/19/05	4/21/05
6010B	Magnesium (Mg)	128	25	0.065	mg/L	4/19/05	4/21/05
6010B	Magnesium (Mg)	123 E	5	0.0129	mg/L	4/19/05	4/22/05
6010B	Potassium (K)	6.7	5	0.0995	mg/L	4/19/05	4/21/05
6010B	Sodium (Na)	47.5	5	0.1111	mg/L	4/19/05	4/21/05

E = The reported value exceeds linear range.

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2L-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski  
Project: 1990.86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-530

Sample Collection Date: 4/13/05

ARF: 47118

APPL ID: AX17479

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	528	5	0.27	mg/L	4/19/05	4/23/05
6010B	Calcium (Ca)	490 E	5	0.0272	mg/L	4/19/05	4/22/05
6010B	Iron (Fe)	14.8	0.1	0.0258	mg/L	4/19/05	4/22/05
6010B	Magnesium (Mg)	89.0	5	0.0129	mg/L	4/19/05	4/22/05
6010B	Potassium (K)	8.5	5	0.0995	mg/L	4/19/05	4/22/05
6010B	Sodium (Na)	41.4	5	0.1111	mg/L	4/19/05	4/22/05

E = The reported value exceeds linear range.

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2L-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski  
Project: 1990 86D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-531**

Sample Collection Date: 4/13/05

ARF: 47118

**APPL ID: AX17480**

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	349	25	0.14	mg/L	4/19/05	4/22/05
6010B	Calcium (Ca)	330 E	5	0.0272	mg/L	4/19/05	4/22/05
6010B	Iron (Fe)	17.5	0.1	0.0258	mg/L	4/19/05	4/22/05
6010B	Magnesium (Mg)	75.4	5	0.0129	mg/L	4/19/05	4/22/05
6010B	Potassium (K)	4.0 J	5	0.0995	mg/L	4/19/05	4/22/05
6010B	Sodium (Na)	37.8	5	0.1111	mg/L	4/19/05	4/22/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

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<sup>2</sup>L-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990.86D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-1016**

Sample Collection Date: 4/13/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47118

**APPL ID: AX17481**

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	370	25	0.14	mg/L	4/19/05	4/22/05
6010B	Calcium (Ca)	341 E	5	0.0272	mg/L	4/19/05	4/22/05
6010B	Iron (Fe)	21.8	0.1	0.0258	mg/L	4/19/05	4/22/05
6010B	Magnesium (Mg)	110	25	0.065	mg/L	4/19/05	4/22/05
6010B	Magnesium (Mg)	104 E	5	0.0129	mg/L	4/19/05	4/22/05
6010B	Potassium (K)	7.0	5	0.0995	mg/L	4/19/05	4/22/05
6010B	Sodium (Na)	46.0	5	0.1111	mg/L	4/19/05	4/22/05

E = The reported value exceeds linear range.

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-1018**

Sample Collection Date: 4/13/05

ARF: 47118

**APPL ID: AX17483**

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	378	25	0.14	mg/L	4/19/05	4/22/05
6010B	Calcium (Ca)	342 E	5	0.0272	mg/L	4/19/05	4/22/05
6010B	Iron (Fe)	18.9	0.1	0.0258	mg/L	4/19/05	4/22/05
6010B	Magnesium (Mg)	117	25	0.065	mg/L	4/19/05	4/22/05
6010B	Magnesium (Mg)	108 E	5	0.0129	mg/L	4/19/05	4/22/05
6010B	Potassium (K)	5.4	5	0.0995	mg/L	4/19/05	4/22/05
6010B	Sodium (Na)	42.7	5	0.1111	mg/L	4/19/05	4/22/05

E = The reported value exceeds linear range.

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2L-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

ARF: 47118

Sample ID: 86-WOPT-1019

APPL ID: AX17484

Sample Collection Date: 4/13/05

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	309	25	0.14	mg/L	4/19/05	4/22/05
6010B	Calcium (Ca)	288 E	5	0.0272	mg/L	4/19/05	4/22/05
6010B	Iron (Fe)	21.3	0.1	0.0258	mg/L	4/19/05	4/22/05
6010B	Magnesium (Mg)	97.6	5	0.0129	mg/L	4/19/05	4/22/05
6010B	Potassium (K)	6.0	5	0.0095	mg/L	4/19/05	4/22/05
6010B	Sodium (Na)	41.5	5	0.1111	mg/L	4/19/05	4/22/05

E = The reported value exceeds linear range.

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2L-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1020

Sample Collection Date: 4/13/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47118

APPL ID: AX17485

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	596	50	0.27	mg/L	4/19/05	4/26/05
6010B	Calcium (Ca)	572 E	5	0.0272	mg/L	4/19/05	4/22/05
6010B	Iron (Fe)	17.7	0.1	0.0258	mg/L	4/19/05	4/22/05
6010B	Magnesium (Mg)	144	25	0.065	mg/L	4/19/05	4/22/05
6010B	Magnesium (Mg)	115 E	5	0.0129	mg/L	4/19/05	4/22/05
6010B	Potassium (K)	12.2	5	0.0995	mg/L	4/19/05	4/22/05
6010B	Sodium (Na)	48.4	5	0.1111	mg/L	4/19/05	4/22/05

E = The reported value exceeds linear range.

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PL-F1-SC-MCRes/MCPQL-REG MDLs



## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski  
Project: 1990.86D WATS Bldg 88 Moffett Airfield

ARF: 47118

**Sample ID: 86-WCPT-1021**

**APPL ID: AX17486**

Sample Collection Date: 4/13/05

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	431	25	0.14	mg/L	4/19/05	4/22/05
6010B	Calcium (Ca)	409 E	5	0.0272	mg/L	4/19/05	4/22/05
6010B	Iron (Fe)	26.3	0.1	0.0258	mg/L	4/19/05	4/22/05
6010B	Magnesium (Mg)	99.8	5	0.0129	mg/L	4/19/05	4/22/05
6010B	Potassium (K)	9.8	5	0.0995	mg/L	4/19/05	4/22/05
6010B	Sodium (Na)	43.9	5	0.1111	mg/L	4/19/05	4/22/05

E = The reported value exceeds linear range.

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1028

Sample Collection Date: 4/13/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47118

APPL ID: AX17487

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	475	25	0.14	mg/L	4/19/05	4/22/05
6010B	Calcium (Ca)	470 E	5	0.0272	mg/L	4/19/05	4/22/05
6010B	Iron (Fe)	35.7	0.1	0.0258	mg/L	4/19/05	4/22/05
6010B	Magnesium (Mg)	117	25	0.065	mg/L	4/19/05	4/22/05
6010B	Magnesium (Mg)	120 E	5	0.0129	mg/L	4/19/05	4/22/05
6010B	Potassium (K)	10.9	5	0.0995	mg/L	4/19/05	4/22/05
6010B	Sodium (Na)	45.2	5	0.1111	mg/L	4/19/05	4/22/05

E = The reported value exceeds linear range.

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?L-F1-SC-MCRes\MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1029

Sample Collection Date: 4/13/05

ARF: 47118

APPL ID: AX17488

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	433	25	0.14	mg/L	4/19/05	4/22/05
6010B	Calcium (Ca)	416 E	5	0.0272	mg/L	4/19/05	4/22/05
6010B	Iron (Fe)	212	1.0	0.26	mg/L	4/19/05	4/23/05
6010B	Iron (Fe)	181 E	0.1	0.0258	mg/L	4/19/05	4/22/05
6010B	Magnesium (Mg)	118	5	0.065	mg/L	4/19/05	4/22/05
6010B	Magnesium (Mg)	113 E	5	0.0129	mg/L	4/19/05	4/22/05
6010B	Potassium (K)	7.0	5	0.0995	mg/L	4/19/05	4/22/05
6010B	Sodium (Na)	45.1	5	0.1111	mg/L	4/19/05	4/22/05

E = The reported value exceeds linear range.

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2L-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Blenkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1030

Sample Collection Date: 4/13/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47118

APPL ID: AX17489

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	422	25	0.14	mg/L	4/19/05	4/22/05
6010B	Calcium (Ca)	424 E	5	0.0272	mg/L	4/19/05	4/22/05
6010B	Iron (Fe)	43.8	0.50	0.13	mg/L	4/19/05	4/22/05
6010B	Iron (Fe)	41.1 E	0.1	0.0258	mg/L	4/19/05	4/22/05
6010B	Magnesium (Mg)	74.6	5	0.0129	mg/L	4/19/05	4/22/05
6010B	Potassium (K)	10.1	5	0.0995	mg/L	4/19/05	4/22/05
6010B	Sodium (Na)	49.1	25	0.56	mg/L	4/19/05	4/22/05
6010B	Sodium (Na)	50.9 E	5	0.1111	mg/L	4/19/05	4/22/05

E = The reported value exceeds linear range.

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2L-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-1031**

Sample Collection Date: 4/13/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47118

**APPL ID: AX17490**

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	602	50	0.27	mg/L	4/19/05	4/23/05
6010B	Calcium (Ca)	610 E	5	0.0272	mg/L	4/19/05	4/22/05
6010B	Iron (Fe)	20.9	0.1	0.0258	mg/L	4/19/05	4/22/05
6010B	Magnesium (Mg)	115	25	0.065	mg/L	4/19/05	4/23/05
6010B	Magnesium (Mg)	114 E	5	0.0129	mg/L	4/19/05	4/22/05
6010B	Potassium (K)	13.8	5	0.0995	mg/L	4/19/05	4/22/05
6010B	Sodium (Na)	45.8	5	0.1111	mg/L	4/19/05	4/22/05

E = The reported value exceeds linear range.

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?L-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 85 Moffett Airfield

**Sample ID: 86-WOPT-1032**

Sample Collection Date: 4/13/05

ARF: 47118

**APPL ID: AX17491**

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	410	25	0.14	mg/L	4/19/05	4/23/05
6010B	Calcium (Ca)	413 E	5	0.0272	mg/L	4/19/05	4/22/05
6010B	Iron (Fe)	22.3	0.1	0.0258	mg/L	4/19/05	4/22/05
6010B	Magnesium (Mg)	99.3	25	0.065	mg/L	4/19/05	4/23/05
6010B	Magnesium (Mg)	105 E	5	0.0129	mg/L	4/19/05	4/22/05
6010B	Potassium (K)	8.0	5	0.0995	mg/L	4/19/05	4/22/05
6010B	Sodium (Na)	43.9	5	0.1111	mg/L	4/19/05	4/22/05

E = The reported value exceeds linear range.

Printed: 4/26/05 2:45:05 PM

L-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-516

Sample Collection Date: 4/13/05

APPL ID: AX17465

ARF: 47118

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	43800	1000	80	ug/L	4/15/05	4/15/05
EPA 300.0	Nitrate	2210	200	15	ug/L	4/15/05	4/15/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/15/05	4/15/05
EPA 300.0	Sulfate	544000 E	1000	90	ug/L	4/15/05	4/15/05
EPA 300.0	Sulfate	462000	5000	450	ug/L	4/14/05	4/14/05
EPA 310.1	Bicarbonate	403	5	0.787	mg/L	4/18/05	4/18/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/18/05	4/18/05

E = The reported value exceeds linear range.

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4PPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.36D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-517

Sample Collection Date: 4/13/05

APPL ID: AX17466

ARF: 47118

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	43200	1000	80	ug/L	4/15/05	4/15/05
EPA 300.0	Nitrate	6580	200	15	ug/L	4/15/05	4/15/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/15/05	4/15/05
EPA 300.0	Sulfate	295000 E	1000	90	ug/L	4/15/05	4/15/05
EPA 300.0	Sulfate	244000	5000	450	ug/L	4/14/05	4/14/05
EPA 310.1	Bicarbonate	444	5	0.787	mg/L	4/18/05	4/18/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/18/05	4/18/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs



## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-518

Sample Collection Date: 4/13/05

APPL ID: AX17467

ARF: 47118

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	43300	1000	80	ug/L	4/15/05	4/15/05
EPA 300.0	Nitrate	3950	200	15	ug/L	4/15/05	4/15/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/15/05	4/15/05
EPA 300.0	Sulfate	310000 E	1000	90	ug/L	4/15/05	4/15/05
EPA 300.0	Sulfate	260000	5000	450	ug/L	4/14/05	4/14/05
EPA 310.1	Bicarbonate	440	5	0.787	mg/L	4/18/05	4/18/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/18/05	4/18/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-519

Sample Collection Date: 4/13/05

APPL ID: AX17468

ARF: 47118

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	43300	1000	80	ug/L	4/14/05	4/14/05
EPA 300.0	Nitrate	4440	200	15	ug/L	4/14/05	4/14/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/14/05	4/14/05
EPA 300.0	Sulfate	311000 E	1000	90	ug/L	4/14/05	4/14/05
EPA 300.0	Sulfate	260000	5000	450	ug/L	4/14/05	4/14/05
EPA 310.1	Bicarbonate	443	5	0.787	mg/L	4/18/05	4/18/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/18/05	4/18/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 68 Moffett Airfield

Sample ID: 86-WOPT-520

Sample Collection Date: 4/13/05

APPL ID: AX17469

ARF: 47118

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	41500	1000	80	ug/L	4/14/05	4/14/05
EPA 300.0	Nitrate	5550	200	15	ug/L	4/14/05	4/14/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/14/05	4/14/05
EPA 300.0	Sulfate	425000 E	1000	90	ug/L	4/14/05	4/14/05
EPA 300.0	Sulfate	359000	5000	450	ug/L	4/14/05	4/14/05
EPA 310.1	Bicarbonate	341	5	0.787	mg/L	4/18/05	4/18/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/18/05	4/18/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-521

Sample Collection Date: 4/13/05

APPL ID: AX17470

ARF: 47118

Method	Analyte	Result	FQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	40100	1000	80	ug/L	4/14/05	4/14/05
EPA 300.0	Nitrate	5890	200	15	ug/L	4/14/05	4/14/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/14/05	4/14/05
EPA 300.0	Sulfate	394000 E	1000	90	ug/L	4/14/05	4/14/05
EPA 300.0	Sulfate	331000	5000	450	ug/L	4/14/05	4/14/05
EPA 310.1	Bicarbonate	323	5	0.787	mg/L	4/21/05	4/21/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/21/05	4/21/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-522**

Sample Collection Date: 4/13/05

**APPL ID: AX17471**

ARF: 47118

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 20.4 Percent Moisture.)							
CLP MOIST	Moisture	20.4	2.0		%	4/13/05	4/13/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-523

Sample Collection Date: 4/13/05

APPL ID: AX17472

ARF: 47118

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 18.7 Percent Moisture.)							
CLP MOIST	Moisture	18.7	2.0		%	4/13/05	4/13/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-524

Sample Collection Date: 4/13/05

APPL ID: AX17473

ARF: 47118

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 11.8 Percent Moisture.)							
CLP MCIST	Moisture	11.8	2.0		%	4/13/05	4/13/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-525

Sample Collection Date: 4/13/05

APPL ID: AX17474

ARF: 47118

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 18.6 Percent Moisture.)							
CLP MOIST	Moisture	18.6	2.0		%	4/13/05	4/13/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs



## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bidg 88 Moffett Airfield

Sample ID: 86-WOPT-526

Sample Collection Date: 4/13/05

APPL ID: AX17475

ARF: 47118

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 12.8 Percent Moisture.)							
CLP MOIST	Moisture	12.8	2.0		%	4/13/05	4/13/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-527**

Sample Collection Date: 4/13/05

**APPL ID: AX17476**

ARF: 47118

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 13.2 Percent Moisture.)							
CLP MOIST	Moisture	13.2	2.0		%	4/13/05	4/13/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-528

Sample Collection Date: 4/13/05

APPL ID: AX17477

ARF: 47118

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
SW846 9060	Total Organic Carbon	4.8	0.5	0.129	mg/L	4/20/05	4/20/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

# Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bjenkowski

Project: 1990.86D WATS Bldg 68 Moffett Airfield

Sample ID: 86-WOPT-529

Sample Collection Date: 4/13/05

APPL ID: AX17473

ARF: 47118

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Sulfate	478000	10000	9/11/05	µg/L	4/22/05	4/22/05
EPA 300.0	Chloride	41100	1000	200	µg/L	4/14/05	4/14/05
EPA 300.0	Nitrate	8840	200	15	µg/L	4/14/05	4/14/05
EPA 300.0	Nitrite	1080	100	33	µg/L	4/14/05	4/14/05
EPA 300.0	Sulfate	610000 E	1000	90	µg/L	4/14/05	4/14/05
EPA 310.1	Bicarbonate	406	5	0.787	mg/L	4/21/05	4/21/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/21/05	4/21/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

Sample ID: 66-WOPT-530

Sample Collection Date: 4/13/05

APPL ID: AX17479

ARF: 47118

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	39000	1000	80	ug/L	4/14/05	4/14/05
EPA 300.0	Nitrate	7430	200	15	ug/L	4/14/05	4/14/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/14/05	4/14/05
EPA 300.0	Sulfate	287000 E	1000	90	ug/L	4/14/05	4/14/05
EPA 300.0	Sulfate	240000	5000	450	ug/L	4/14/05	4/14/05
EPA 310.1	Bicarbonate	293	5	0.787	mg/L	4/21/05	4/21/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/21/05	4/21/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990 86D WATS Bldg 88 Moffett Airfield

Sample ID: 85-WOPT-531

Sample Collection Date: 4/13/05

APPL ID: AX17480

ARF: 47118

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	38700	1000	80	ug/L	4/14/05	4/14/05
EPA 300.0	Nitrate	66000	200	15	ug/L	4/14/05	4/14/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/14/05	4/14/05
EPA 300.0	Sulfate	297000 E	1000	90	ug/L	4/14/05	4/14/05
EPA 300.0	Sulfate	249000	5000	450	ug/L	4/14/05	4/14/05
EPA 310.1	Bicarbonate	286	5	0.787	mg/L	4/21/05	4/21/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/21/05	4/21/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1016

Sample Collection Date: 4/13/05

APPL ID: AX17481

ARF: 47118

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	42400	1000	80	ug/L	4/14/05	4/14/05
EPA 300.0	Nitrate	6490	200	15	ug/L	4/14/05	4/14/05
EPA 300.0	Nitrite	1240	100	33	ug/L	4/14/05	4/14/05
EPA 300.0	Sulfate	286000 E	1000	90	ug/L	4/14/05	4/14/05
EPA 300.0	Sulfate	238000	5000	450	ug/L	4/14/05	4/14/05
EPA 310.1	Bicarbonate	426	5	0.787	mg/L	4/21/05	4/21/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/21/05	4/21/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1018

Sample Collection Date: 4/13/05

APPL ID: AX17483

ARF: 47118

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	41400	1000	80	ug/L	4/14/05	4/14/05
EPA 300.0	Nitrate	13400	200	15	ug/L	4/14/05	4/14/05
EPA 300.0	Nitrite	1000	100	33	ug/L	4/14/05	4/14/05
EPA 300.0	Sulfate	258000 E	1000	90	ug/L	4/14/05	4/14/05
EPA 300.0	Sulfate	214000	5000	450	ug/L	4/14/05	4/14/05
EPA 310.1	Bicarbonate	414	5	0.787	mg/L	4/21/05	4/21/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/21/05	4/21/05

E = The reported value exceeds linear range.

**AMENDED PAGE**

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APPL-F1-SC-MCRss/MCPQL-REG MDLs



## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1590.86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1019

Sample Collection Date: 4/13/05

APPL ID: AX17484

ARF: 47118

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	40900	1000	80	ug/L	4/14/05	4/14/05
EPA 300.0	Nitrate	13300	200	15	ug/L	4/14/05	4/14/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/14/05	4/14/05
EPA 300.0	Sulfate	256000 E	1000	90	ug/L	4/14/05	4/14/05
EPA 300.0	Sulfate	213000	5000	450	ug/L	4/14/05	4/14/05
EPA 310.1	Bicarbonate	416	5	0.787	mg/L	4/21/05	4/21/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/21/05	4/21/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

# Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1020

Sample Collection Date: 4/13/05

APPL ID: AX17485

ARF: 47118

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	42500	1000	80	ug/L	4/14/05	4/14/05
EPA 300.0	Nitrate	13800	200	15	ug/L	4/14/05	4/14/05
EPA 300.0	Nitrite	1020	100	33	ug/L	4/14/05	4/14/05
EPA 300.0	Sulfate	266000 E	1000	90	ug/L	4/14/05	4/14/05
EPA 300.0	Sulfate	220000	5000	450	ug/L	4/15/05	4/15/05
EPA 310.1	Bicarbonate	432	5	0.787	mg/L	4/21/05	4/21/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/21/05	4/21/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

# Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1021

Sample Collection Date: 4/13/05

APPL ID: AX17486

ARF: 47118

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	41200	1000	80	ug/L	4/14/05	4/14/05
EPA 300.0	Nitrate	7610	200	15	ug/L	4/14/05	4/14/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/14/05	4/14/05
EPA 300.0	Sulfate	425000 E	1000	90	ug/L	4/14/05	4/14/05
EPA 300.0	Sulfate	358000	5000	450	ug/L	4/15/05	4/15/05
EPA 310.1	Bicarbonate	333	5	0.787	mg/L	4/21/05	4/21/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/21/05	4/21/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

Sample ID: 66-WOPT-1028

Sample Collection Date: 4/13/05

APPL ID: AX17487

ARF: 47118

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	49200	1000	80	ug/L	4/14/05	4/14/05
EPA 300.0	Nitrate	2580	200	15	ug/L	4/14/05	4/14/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/14/05	4/14/05
EPA 300.0	Sulfate	397000 E	1000	90	ug/L	4/14/05	4/14/05
EPA 300.0	Sulfate	332000	5000	450	ug/L	4/15/05	4/15/05
EPA 310.1	Bicarbonate	400	5	0.787	mg/L	4/21/05	4/21/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/21/05	4/21/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1029

Sample Collection Date: 4/13/05

APPL ID: AX17488

ARF: 47118

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	42400	1000	80	ug/L	4/14/05	4/14/05
EPA 300.0	Nitrate	3500	200	15	ug/L	4/14/05	4/14/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/14/05	4/14/05
EPA 300.0	Sulfate	299000 E	1000	90	ug/L	4/14/05	4/14/05
EPA 300.0	Sulfate	250000	5000	450	ug/L	4/15/05	4/15/05
EPA 310.1	Bicarbonate	438	5	0.787	mg/L	4/21/05	4/21/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/21/05	4/21/05

E = The reported value exceeds linear range.

Printed: 5/11/05 10:21:04 AM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1030

Sample Collection Date: 4/13/05

APPL ID: AX17489

ARF: 47118

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	41700	1000	80	ug/L	4/14/05	4/14/05
EPA 300.0	Nitrate	15700	200	15	ug/L	4/14/05	4/14/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/14/05	4/14/05
EPA 300.0	Sulfate	26900 E	1000	90	ug/L	4/14/05	4/14/05
EPA 300.0	Sulfate	223000	5000	450	ug/L	4/15/05	4/15/05
EPA 310.1	Bicarbonate	Not detected	5	0.787	mg/L	4/21/05	4/21/05
EPA 310.1	Carbonate	25.2	5	0.787	mg/L	4/21/05	4/21/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.85D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WCPT-1031**

Sample Collection Date: 4/13/05

**APPL ID: AX17490**

**ARF: 47118**

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	40700	1000	80	ug/L	4/14/05	4/14/05
EPA 300.0	Nitrate	8580	200	15	ug/L	4/14/05	4/14/05
EPA 300.0	Nitrite	893	100	33	ug/L	4/14/05	4/14/05
EPA 300.0	Sulfate	471000 E	1000	90	ug/L	4/14/05	4/14/05
EPA 300.0	Sulfate	370000	5000	450	ug/L	4/15/05	4/15/05
EPA 310.1	Bicarbonate	354	5	0.787	mg/L	4/21/05	4/21/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/21/05	4/21/05

E = The reported value exceeds linear range.

Printed: 5/11/05 10:21:04 AM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1032

Sample Collection Date: 4/13/05

APPL ID: AX17491

ARF: 47118

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	40600	1000	80	ug/L	4/14/05	4/14/05
EPA 300.0	Nitrate	6480	200	15	ug/L	4/14/05	4/14/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/14/05	4/14/05
EPA 300.0	Sulfate	424000 E	1000	90	ug/L	4/14/05	4/14/05
EPA 300.0	Sulfate	361000	5000	450	ug/L	4/15/05	4/15/05
EPA 310.1	Bicarbonate	353	5	0.787	mg/L	4/21/05	4/21/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/21/05	4/21/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs



## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

Sample ID: **86-WOPT-1022**

Sample Collection Date: 4/13/05

APPL ID: **AX17492**

ARF: 47118

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 18.7 Percent Moisture.)							
CLP MOIST	Moisture	18.7	2.0		%	4/13/05	4/13/05

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1023

Sample Collection Date: 4/13/05

APPL ID: AX17493

ARF: 47118

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 18.8 Percent Moisture.)							
CLP MOIST	Moisture	18.8	2.0		%	4/13/05	4/13/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deare Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1024

Sample Collection Date: 4/13/05

APPL ID: AX17494

ARF: 47118

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 20.1 Percent Moisture.)							
CLP MOIST	Moisture	20.1	2.0		%	4/13/05	4/13/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
; 940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bidg 88 Moffett Airfield

**Sample ID: 86-WOPT-1025**

Sample Collection Date: 4/13/05

**APPL ID: AX17495**

**ARF: 47118**

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 17.4 Percent Moisture.)							
CLP MOIST	Moisture	17.4	2.0		%	4/13/05	4/13/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-1026**

Sample Collection Date: 4/13/05

**APPL ID: AX17496**

ARF: 47118

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 19.5 Percent Moisture.)							
CLP MOIST	Moisture	19.5	2.0		%	4/13/05	4/13/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Blenkowski

Project: 1990.86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1027

Sample Collection Date: 4/13/05

APPL ID: AX17497

ARF: 47118

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
SW846 9060	Total Organic Carbon	4.5	0.5	0.129	mg/L	4/20/05	4/20/05

Printed: 5/11/05 10:21 04 AM

APPL-F1-SC-MCRes/MCPQL-REG MDLs



May 2, 2005

Service Request No: K2502743

Robert Wise  
APPL, Inc.  
4203 W. Swift Avenue  
Fresno, CA 93722

**RE: 47118**

Dear Robert:

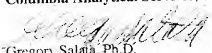
Enclosed are the results of the rush sample(s) submitted to our laboratory on April 15, 2005. For your reference, these analyses have been assigned our service request number K2502743.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAC standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3376.

Respectfully submitted,

**Columbia Analytical Services, Inc.**

  
Gregory Salata, Ph.D.  
Project Chemist

GS/4

Page 1 of 15

COLUMBIA ANALYTICAL SERVICES, INC.

Client: Agriculture & Priority Pollutants Labs  
Project: 47118  
Sample Matrix: Soil

Service Request No.: K2502743  
Date Received: 04/15/05

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier III validation deliverables including summary forms and all of the associated raw data for each of the analyses. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Eleven soil samples were received for analysis at Columbia Analytical Services on 04/15/05. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

General Chemistry Parameters

No anomalies associated with the analysis of these samples were observed.

Approved by



Date

5/1/05

00065



## COLUMBIA ANALYTICAL SERVICES, INC.

## Analytical Report

Client : Agriculture & Priority Pollutants Labs  
 Project Name : NA  
 Project Number : 47118  
 Sample Matrix : SOIL

Service Request : K2502743  
 Date Collected : 04/13/05  
 Date Received : 04/15/05

## Carbon, Total Organic

Units : mg/kg (ppm)  
 Basis : Dry

Analysis Method : Walkley-Black  
 Test Notes :

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
86-WOPT-522	K2502743-001	2000	900	1	04/26/05	1930	J
86-WOPT-523	K2502743-002	2000	900	1	04/26/05	4090	
86-WOPT-524	K2502743-003	2000	900	1	04/26/05	1010	J
86-WOPT-525	K2502743-004	2000	900	1	04/26/05	1940	J
86-WOPT-526	K2502743-005	2000	900	1	04/26/05	ND	
86-WOPT-527	K2502743-006	2000	900	1	04/26/05	ND	
86-WOPT-1022	K2502743-007	2000	900	1	04/26/05	2630	
86-WOPT-1023	K2502743-008	2000	900	1	04/26/05	1960	J
86-WOPT-1024	K2502743-009	2000	900	1	04/26/05	1300	J
86-WOPT-1025	K2502743-010	2000	900	1	04/26/05	1170	J
86-WOPT-1026	K2502743-011	2000	900	1	04/26/05	ND	
Method Blank	K2502743-MB	2000	900	1	04/26/05	ND	

00010

# Laboratory Data Consultants, Inc. Data Validation Report

Project/Site Name: Moffett Air Field, Building 88, CTO 86  
 Collection Date: April 13, 2005  
 LDC Report Date: May 25, 2005  
 Matrix: Soil/Water  
 Parameters: Wet Chemistry  
 Validation Level: EPA Level III & IV  
 Laboratory: APPL, Inc./Columbia Analytical Services, Inc.  
 Sample Delivery Group (SDG): 47118/K2502743

## Sample Identification

86-WOPT-516\*\*  
 86-WOPT-516DL\*\*  
 86-WOPT-517  
 86-WOPT-517DL  
 86-WOPT-518  
 86-WOPT-518DL  
 86-WOPT-519  
 86-WOPT-519DL  
 86-WOPT-520\*\*  
 86-WOPT-520DL\*\*  
 86-WOPT-521  
 86-WOPT-521DL  
 86-WOPT-522  
 86-WOPT-523  
 86-WOPT-524  
 86-WOPT-525\*\*  
 86-WOPT-526  
 86-WOPT-527  
 86-WOPT-528  
 86-WOPT-529

86-WOPT-529DL  
 86-WOPT-530\*\*  
 86-WOPT-530DL\*\*  
 86-WOPT-531  
 86-WOPT-531DL  
 86-WOPT-1016\*\*  
 86-WOPT-1016DL\*\*  
 86-WOPT-1018  
 86-WOPT-1018DL  
 86-WOPT-1019  
 86-WOPT-1019DL  
 86-WOPT-1020  
 86-WOPT-1020DL  
 86-WOPT-1021\*\*  
 86-WOPT-1021DL\*\*  
 86-WOPT-1028  
 86-WOPT-1028DL  
 86-WOPT-1029  
 86-WOPT-1029DL  
 86-WOPT-1030

86-WOPT-1030DL  
 86-WOPT-1031\*\*  
 86-WOPT-1031DL\*\*  
 86-WOPT-1032  
 86-WOPT-1032DL  
 86-WOPT-1022\*\*  
 86-WOPT-1023  
 86-WOPT-1024  
 86-WOPT-1025  
 86-WOPT-1026  
 86-WOPT-1027  
 86-WOPT-516MS  
 86-WOPT-1020MS  
 86-WOPT-1020MSD  
 86-WOPT-522DUP  
 86-WOPT-531MS

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 12 soil samples and 44 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 300.0 for Chloride, Nitrate, Nitrite, and Sulfate, EPA Method 310.1 for Carbonate and Bicarbonate, and Walkley-Black method and EPA SW 846 Method 9060 for Total Organic Carbon.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section IX.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met with the following exceptions:

Sample	Analyte	Total Time From Sample Collection Until Analysis	Required Holding Time From Sample Collection Until Analysis	Flag	A or P
86-WOPT-516** 86-WOPT-517 86-WOPT-518	Nitrate Nitrite	51.5 hours 51.5 hours	48 hours 48 hours	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

### a. Initial Calibration

All criteria for the initial calibration of each method were met.

### b. Calibration Verification

Calibration verification frequency and analysis criteria were met for each method when applicable.

## III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the method blanks with the following exceptions:

Method Blank ID	Analyte	Concentration	Associated Samples
ICB/CCB	Chloride	2.04 mg/L	86-WOPT-519 86-WOPT-520** 86-WOPT-521 86-WOPT-529 86-WOPT-530** 86-WOPT-531 86-WOPT-1016** 86-WOPT-1018 86-WOPT-1019 86-WOPT-1020
ICB/CCB	Chloride Nitrite as N	2.01 mg/L 0.181 mg/L	86-WOPT-1021** 86-WOPT-1028 86-WOPT-1029 86-WOPT-1030 86-WOPT-1031** 86-WOPT-1032

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater ( >5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
86-WOPT-1031**	Nitrite	893 ug/L	893U ug/L

#### IV. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
86-WOPT-1020MS/MSD 86-WOPT-516** 86-WOPT-517 86-WOPT-518 86-WOPT-519 86-WOPT-520** 86-WOPT-521 86-WOPT-529 86-WOPT-530** 86-WOPT-531 86-WOPT-1016** 86-WOPT-1018 86-WOPT-1019 86-WOPT-1020 86-WOPT-1021** 86-WOPT-1028 86-WOPT-1029 86-WOPT-1030 86-WOPT-1031** 86-WOPT-1032)	Nitrate	132 (80-120)	122 (80-120)	-	J (all detects)	A

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
86-WOPT-1020MS,MSD 86-WOPT-S16** 86-WOPT-S16DL** 86-WOPT-S17 86-WOPT-S17DL 86-WOPT-S18 86-WOPT-S18DL 86-WOPT-S19 86-WOPT-S19DL 86-WOPT-S20** 86-WOPT-S20DL** 86-WOPT-S21 86-WOPT-S21DL 86-WOPT-S29 86-WOPT-S30** 86-WOPT-S30DL** 86-WOPT-S31 86-WOPT-S31DL 86-WOPT-1016** 86-WOPT-1016DL** 86-WOPT-1018 86-WOPT-1018DL 86-WOPT-1019 86-WOPT-1019DL 86-WOPT-1020 86-WOPT-1020DL 86-WOPT-1021** 86-WOPT-1021DL** 86-WOPT-1028 86-WOPT-1028DL 86-WOPT-1029 86-WOPT-1029DL 86-WOPT-1030 86-WOPT-1030DL 86-WOPT-1031** 86-WOPT-1031DL** 86-WOPT-1032 86-WOPT-1032DL	Sulfate	-	62.0 (80-120)	-	J (all detects) UJ (all non-detects)	A

## V. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## VI. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VII. Sample Result Verification

All sample result verification met validation criteria with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
86-WOPT-516** 86-WOPT-517 86-WOPT-518 86-WOPT-519 86-WOPT-520** 86-WOPT-521 86-WOPT-529 86-WOPT-530** 86-WOPT-531 86-WOPT-1016** 86-WOPT-1018 86-WOPT-1019 86-WOPT-1020 86-WOPT-1021** 86-WOPT-1028 86-WOPT-1029 86-WOPT-1030 86-WOPT-1031** 86-WOPT-1032	Sulfate	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	A

Raw data were not evaluated for the samples reviewed by Level III criteria.

### VIII. Overall Assessment of Data

Data flags are summarized at the end of this report.

### IX. Field Duplicates

Samples 86-WOPT-518 and 86-WOPT-519, samples 86-WOPT-518DL and 86-WOPT-519DL, samples 86-WOPT-1018 and 86-WOPT-1019, and samples 86-WOPT-1018DL and 86-WOPT-1019DL were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration (ug/L)		RPD
	86-WOPT-518	88-WOPT-519	
Chloride	43300	4300	0
Nitrate	3950	4440	12
Sulfate	310000	311000	0

Analyte	Concentration (mg/L)		RPD
	86-WOPT-518	88-WOPT-519	
Bicarbonate	440	443	1

Analyte	Concentration (ug/L)		RPD
	88-WOPT-518DL	86-WOPT-519DL	
Sulfate	260000	260000	0

Analyte	Concentration (ug/L)		RPD
	86-WOPT-1018	86-WOPT-1019	
Chloride	41400	40900	1
Nitrate	13400	13300	1
Nitrite	1000	100U	Not calculable
Sulfate	258000	256000	1

Analyte	Concentration (mg/L)		RPD
	86-WOPT-1018	86-WOPT-1019	
Bicarbonate	414	416	0

Analyte	Concentration (ug/L)		RPD
	88-WOPT-1018DL	88-WOPT-529DL	
Sulfate	214000	213000	0

## X. Field Blanks

Samples 86-WOPT-528 and 86-WOPT-1027 were identified as equipment rinsates. No contaminant concentrations were found in these blanks with the following exceptions:

Equipment Rinsete ID	Analyte	Concentration (mg/L)
86-WOPT-528	Total organic carbon	4.8
86-WOPT-1027	Total organic carbon	4.5



**Moffett Air Field, Building 88, CTO 86**  
**Wet Chemistry - Data Qualification Summary - SDG 47118/K2502743**

SDG	Sample	Analyte	Flag	A or P	Reason
47118/ K2502743	86-WOPT-516** 86-WOPT-517 86-WOPT-518	Nitrate  Nitrite	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Technical holding times
47118/ K2502743	86-WOPT-516** 86-WOPT-517 86-WOPT-518 86-WOPT-519 86-WOPT-520** 86-WOPT-521 86-WOPT-529 86-WOPT-530** 86-WOPT-531 86-WOPT-1016** 86-WOPT-1018 86-WOPT-1019 86-WOPT-1020 86-WOPT-1021** 86-WOPT-1028 86-WOPT-1029 86-WOPT-1030 86-WOPT-1031** 86-WOPT-1032	Nitrate	J (all detects)	A	Matrix spike/Matrix spike duplicates (%R)

SDG	Sample	Analyte	Flag	A or P	Reason
4711B/ K2502743	86-WOPT-516** 86-WOPT-516DL** 86-WOPT-517 86-WOPT-517DL 86-WOPT-518 86-WOPT-518DL 86-WOPT-519 86-WOPT-519DL 86-WOPT-520** 86-WOPT-520DL** 86-WOPT-521 86-WOPT-521DL 86-WOPT-529 86-WOPT-530** 86-WOPT-530DL** 86-WOPT-531 86-WOPT-531DL 86-WOPT-1016** 86-WOPT-1016DL** 86-WOPT-1018 86-WOPT-1018DL 86-WOPT-1019 86-WOPT-1019DL 86-WOPT-1020 86-WOPT-1020DL 86-WOPT-1021** 86-WOPT-1021DL** 86-WOPT-1028 86-WOPT-1028DL 86-WOPT-1029 86-WOPT-1029DL 86-WOPT-1030 86-WOPT-1030DL 86-WOPT-1031** 86-WOPT-1031DL** 86-WOPT-1032 86-WOPT-1032DL	Sulfate	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicates (%R)
4711B/ K2502743	86-WOPT-516** 86-WOPT-517 86-WOPT-518 86-WOPT-519 86-WOPT-520** 86-WOPT-521 86-WOPT-529 86-WOPT-530** 86-WOPT-531 86-WOPT-1016** 86-WOPT-1018 86-WOPT-1019 86-WOPT-1020 86-WOPT-1021** 86-WOPT-1028 86-WOPT-1029 86-WOPT-1030 86-WOPT-1031** 86-WOPT-1032	Sulfate	J (all detects)	A	Sample result verification

Moffett Air Field, Building 88, CTO 86  
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG  
47118/K2502743

SDG	Sample	Analyte	Modified Final Concentration	A or P
47118/ K2502743	86-WOPT-1031**	Nitrite	893U ug/L	A

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Moffett Air Field, Building 88, CTO 86

**Collection Date:** April 13, 2005

**LDC Report Date:** May 25, 2005

**Matrix:** Water

**Parameters:** Metals

**Validation Level:** EPA Level III & IV

**Laboratory:** APPL, Inc.

**Sample Delivery Group (SDG):** 47118

### Sample Identification

86-WOPT-516**	86-WOPT-1018
86-WOPT-516DL**	86-WOPT-1018DL
86-WOPT-517	86-WOPT-1019
86-WOPT-517DL	86-WOPT-1019DL
86-WOPT-518	86-WOPT-1020
86-WOPT-518DL	86-WOPT-1020DL
86-WOPT-519	86-WOPT-1021**
86-WOPT-519DL	86-WOPT-1021DL**
86-WOPT-520**	86-WOPT-1028
86-WOPT-520DL**	86-WOPT-1028DL
86-WOPT-521	86-WOPT-1029
86-WOPT-521DL	86-WOPT-1029DL
86-WOPT-529	86-WOPT-1030
86-WOPT-529DL	86-WOPT-1030DL
86-WOPT-530**	86-WOPT-1031**
86-WOPT-530DL**	86-WOPT-1031DL**
86-WOPT-531	86-WOPT-1032
86-WOPT-531DL	86-WOPT-1032DL
86-WOPT-1016**	86-WOPT-1020MS
86-WOPT-1016DL**	86-WOPT-1020MSD

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 40 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 6010B for Metals. The metals analyzed were Calcium, Iron, Magnesium, Potassium, and Sodium.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Calibration**

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

## **III. Blanks**

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found in the initial, continuing and preparation blanks.

## **IV. ICP Interference Check Sample (ICS) Analysis**

The frequency of analysis was met.

The criteria for analysis were met.

## **V. Matrix Spike Analysis**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VI. Duplicate Sample Analysis**

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

## **VII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

### VIII. Internal Standards

ICP-MS was not utilized in this SDG.

### IX. Furnace Atomic Absorption QC

Graphite furnace atomic absorption was not utilized in this SDG.

### X. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met with the following exceptions:

Diluted Sample	Analyte	%D (Limits)	Associated Samples	Flag	A or P
86-WOPT-1020L	Iron	11.5 ( $\leq 10$ )	86-WOPT-516** 86-WOPT-517 86-WOPT-517DL 86-WOPT-518 86-WOPT-519 86-WOPT-520** 86-WOPT-521 86-WOPT-529 86-WOPT-530** 86-WOPT-531 86-WOPT-1016** 86-WOPT-1018 86-WOPT-1019 86-WOPT-1020 86-WOPT-1021** 86-WOPT-1028 86-WOPT-1029 86-WOPT-1029DL 86-WOPT-1030 86-WOPT-1030DL 86-WOPT-1031** 86-WOPT-1032	J (all detects)	A

### XI. Sample Result Verification

All sample result verification met validation criteria with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
86-WOPT-516** 86-WOPT-518 86-WOPT-521 86-WOPT-529 86-WOPT-1016** 86-WOPT-1018 86-WOPT-1020 86-WOPT-1028 86-WOPT-1031** 86-WOPT-1032	Calcium Magnesium	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects)	A

Sample	Analyte	Finding	Criteria	Flag	A or P
86-WOPT-517	Calcium Iron	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects)	A
86-WOPT-519 86-WOPT-520** 86-WOPT-530** 86-WOPT-531 86-WOPT-1019 86-WOPT-1021**	Calcium	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	A
86-WOPT-1029	Calcium Iron Magnesium	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects) J (all detects)	A
86-WOPT-1030	Calcium Iron Sodium	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects) J (all detects)	A

Raw data were not evaluated for samples reviewed by Level III criteria.

## XII. Overall Assessment of Data

Data flags have been summarized at the end of this report.

## XIII. Field Duplicates

Samples 86-WOPT-518 and 86-WOPT-519, samples 86-WOPT-518 and 86-WOPT-519DL, samples 86-WOPT-518DL and 86-WOPT-519, samples 86-WOPT-518DL and 86-WOPT-519DL, samples 86-WOPT-1018 and 86-WOPT-1019, samples 86-WOPT-1018DL and 86-WOPT-1019, and samples 86-WOPT-1018DL and 86-WOPT-1019DL were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:

Compound	Concentration (mg/L)		RPD
	86-WOPT-518	86-WOPT-519	
Calcium	423	374	12
Iron	56.5	29.1	64
Magnesium	89.5	102	13
Potassium	4.9	6.6	30
Sodium	40.6	43.9	8



Compound	Concentration (mg/L)		RPD
	88-WOPT-518DL	86-WOPT-519DL	
Calcium	471	408	14

Compound	Concentration (mg/L)		RPD
	66-WOPT-518DL	88-WOPT-519	
Iron	65.0	29.1	76

Compound	Concentration (mg/L)		RPD
	86-WOPT-518	86-WOPT-519DL	
Magnesium	69.5	109	20

Compound	Concentration (mg/L)		RPD	
	86-WOPT-1018	86-WOPT-1019		
Calcium	342	288	17	
Iron	18.9	21.3	12	
Magnesium	108	97.6	10	
Potassium	5.4	6.0	11	
Sodium	42.7	41.5	3	

Compound	Concentration (mg/L)		RPD
	86-WOPT-1018DL	86-WOPT-1019DL	
Calcium	378	309	20

Compound	Concentration (mg/L)		RPD
	86-WOPT-1018DL	86-WOPT-1019	
Magnesium	117	97.6	18

#### **XIV. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Air Field, Building 88, CTO 86**  
**Metals - Data Qualification Summary - SDG 47118**

SDG	Sample	Analyte	Fleg	A or P	Reason
47118	86-WOPT-516** 86-WOPT-517 86-WOPT-517DL 86-WOPT-518 86-WOPT-519 86-WOPT-520** 86-WOPT-521 86-WOPT-529 86-WOPT-530** 86-WOPT-531 86-WOPT-1016** 86-WOPT-1018 86-WOPT-1019 86-WOPT-1020 86-WOPT-1021** 86-WOPT-1028 86-WOPT-1029 86-WOPT-1029DL 86-WOPT-1030 86-WOPT-1030DL 86-WOPT-1031** 86-WOPT-1032	Iron	J (all detects)	A	ICP serial dilution (%D)
47118	86-WOPT-516** 86-WOPT-518 86-WOPT-521 86-WOPT-529 86-WOPT-1016** 86-WOPT-1018 86-WOPT-1020 86-WOPT-1028 86-WOPT-1031** 86-WOPT-1032	Calcium Magnesium	J (all detects) J (all detects)	A	Sample result verification
47118	86-WOPT-517	Calcium Iron	J (all detects) J (all detects)	A	Sample result verification
47118	86-WOPT-519 86-WOPT-520** 86-WOPT-530** 86-WOPT-531 86-WOPT-1019 86-WOPT-1021**	Calcium	J (all detects)	A	Sample result verification
47118	86-WOPT-1029	Calcium Iron Magnesium	J (all detects) J (all detects) J (all detects)	A	Sample result verification
47118	86-WOPT-1030	Calcium Iron Sodium	J (all detects) J (all detects) J (all detects)	A	Sample result verification

**Moffett Air Field, Building 88, CTO 86**  
**Metals - Laboratory Blank Data Qualification Summary - SDG 47118**

No Sample Data Qualified in this SDG

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Moffett Air Field, Building 88, CTO 86

**Collection Date:** April 13, 2005

**LDC Report Date:** May 26, 2005

**Matrix:** Water

**Parameters:** Volatiles

**Validation Level:** EPA Level III & IV

**Laboratory:** APPL, Inc.

**Sample Delivery Group (SDG):** 47118

### Sample Identification

86-WOPT-515	86-WOPT-1016DL**	86-WOPT-1020MS
86-WOPT-516**	86-WOPT-1017	86-WOPT-1020MSD
86-WOPT-516DL**	86-WOPT-1018	
86-WOPT-517	86-WOPT-1018DL	
86-WOPT-517DL	86-WOPT-1019	
86-WOPT-518	86-WOPT-1019DL	
86-WOPT-518DL	86-WOPT-1020	
86-WOPT-519	86-WOPT-1020DL	
86-WOPT-519DL	86-WOPT-1021**	
86-WOPT-520**	86-WOPT-1021DL**	
86-WOPT-520DL**	86-WOPT-1028	
86-WOPT-521	86-WOPT-1028DL	
86-WOPT-521DL	86-WOPT-1029	
86-WOPT-529	86-WOPT-1029DL	
86-WOPT-529DL	86-WOPT-1030	
86-WOPT-530**	86-WOPT-1030DL	
86-WOPT-530DL**	86-WOPT-1031**	
86-WOPT-531	86-WOPT-1031DL**	
86-WOPT-531DL	86-WOPT-1032	
86-WOPT-1016**	86-WOPT-1032DL	

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 42 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Contract Laboratory Program Statement of Work (SOW) OLM04.2 for Volatiles.

This review follows USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999); the following subsections correlate to the above guidelines.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 30.0% for all compounds with the following exceptions:

Date	Compound	%RSD	Associated Samples	Flag	A or P
4/12/05	Chloroethane	32	86-WOPT-515 86-WOPT-516**	J (all detects)	A
	Acetone	40	86-WOPT-517 86-WOPT-518 86-WOPT-519 86-WOPT-520** 86-WOPT-521 86-WOPT-529 86-WOPT-530** 86-WOPT-531 86-WOPT-1016** 86-WOPT-1017 86-WOPT-1018 86-WOPT-1019 86-WOPT-1020 86-WOPT-1021** 86-WOPT-1028 86-WOPT-1029 86-WOPT-1030 86-WOPT-1031** 86-WOPT-1032 86-WOPT-1020MS 86-WOPT-1020MSD 050413W 050414W	UJ (all non-detects) J (all detects) UJ (all non-detects)	

Average relative response factors (RRF) for all volatile target compounds and system monitoring compounds were within validation criteria.

## IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 25.0% with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
4/13/05	Bromomethane	26	86-WOPT-515 86-WOPT-516**	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A
	Chloroethane	26	86-WOPT-517 86-WOPT-518 86-WOPT-519 86-WOPT-1017 050413W		
4/14/05	Chloromethane	31	86-WOPT-520**	J (all detects) UJ (all non-detects)	A
	Bromomethane Chloroethane	34 31	86-WOPT-521 86-WOPT-529 86-WOPT-530** 86-WOPT-531 86-WOPT-1016** 86-WOPT-1018 86-WOPT-1019 86-WOPT-1020 86-WOPT-1021** 86-WOPT-1028 86-WOPT-1029 86-WOPT-1030 86-WOPT-1031** 86-WOPT-1032 050414W		

All of the continuing calibration RRF values were within validation criteria.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Analysis Date	Compound TIC (RT in minutes)	Concentration	Associated Samples
050413W1	4/13/05	cis-1,2-Dichloroethene Trichloroethene	0.29 ug/L 0.22 ug/L	86-WOPT-515 86-WOPT-516** 86-WOPT-517 86-WOPT-518 86-WOPT-519 86-WOPT-1017



Method Blank ID	Analysis Date	Compound TIC (RT in minutes)	Concentration	Associated Samples
050414W	4/14/05	Trichloroethene	0.27 ug/L	86-WOPT-520** 86-WOPT-521 86-WOPT-529 86-WOPT-530** 86-WOPT-531 86-WOPT-1016** 86-WOPT-1018 86-WOPT-1019 86-WOPT-1020 86-WOPT-1021** 86-WOPT-1028 86-WOPT-1029 86-WOPT-1030 86-WOPT-1031** 86-WOPT-1032
050420W	4/20/05	Trichloroethene	0.52 ug/L	86-WOPT-518DL 86-WOPT-519DL 86-WOPT-520DL** 86-WOPT-521DL 86-WOPT-529DL

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
86-WOPT-515	cis-1,2-Dichloroethene Trichloroethene	0.17 ug/L 0.50 ug/L	0.5U ug/L 0.50U ug/L
86-WOPT-1017	Trichloroethene	0.35 ug/L	0.5U ug/L

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the SOW. All surrogate recoveries (%R) were within QC limits.

## VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were not within QC limits. Since the sample concentration was greater than the spiked concentration, no data were qualified.

### VIII. Laboratory Control Samples (LCS)

Although laboratory control samples were not required by the method, laboratory control samples were reported by the laboratory. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

### IX. Regional Quality Assurance and Quality Control

Not applicable.

### X. Internal Standards

All internal standard areas and retention times were within QC limits.

### XI. Target Compound Identifications

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

### XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
86-WOPT-516** 86-WOPT-517 86-WOPT-518 86-WOPT-519 86-WOPT-520** 86-WOPT-521 86-WOPT-529 86-WOPT-529 86-WOPT-1016** 86-WOPT-1018 86-WOPT-1019 86-WOPT-1020 86-WOPT-1021** 86-WOPT-1029 86-WOPT-1030 86-WOPT-1031** 86-WOPT-1032	cis-1,2-Dichloroethene Trichloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects)	A
86-WOPT-530**	cis-1,2-Dichloroethene Trichloroethene Tetrachloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects) J (all detects)	A
86-WOPT-531	1,1,2-Trichloro-1,2,2-trifluoroethane cis-1,2-Dichloroethene Trichloroethene Tetrachloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects) J (all detects) J (all detects)	A

Sample	Compound	Finding	Criteria	Flag	A or P
86-WOPT-1028	1,1-Dichloroethene cis-1,2-Dichloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects)	A

Raw data were not evaluated for the samples reviewed by Level III criteria.

### XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

### XIV. System Performance

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

### XV. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### XVI. Field Duplicates

Samples 86-WOPT-518 and 86-WOPT-519, samples 86-WOPT-518DL and 86-WOPT-519DL, samples 86-WOPT-1018 and 86-WOPT-1019, and samples 86-WOPT-1018DL and 86-WOPT-1019DL were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	86-WOPT-518	86-WOPT-519	
1,1,1-Trichloroethane	1.2	1.1	9
1,1,2-Trichloro-1,2,2-trifluoroethane	3.4	3.6	6
1,1-Dichloroethane	8.0	8.1	1
1,1-Dichloroethene	17	17	0
Chloroform	0.20	0.21	5
cis-1,2-Dichloroethene	890	890	0

Compound	Concentration (ug/L)		RPD
	86-WOPT-518	86-WOPT-519	
Tetrachloroethene	33	34	3
trans-1,2-Dichloroethene	30	30	0
Trichloroethene	650	590	10
Vinyl chloride	1.7	1.2	34

Compound	Concentration (ug/L)		RPD
	86-WOPT-518DL	86-WOPT-519DL	
cis-1,2-Dichloroethene	870	850	2
Trichloroethene	520	480	8

Compound	Concentration (ug/L)		RPD
	86-WOPT-1018	86-WOPT-1019	
1,1,1-Trichloroethane	2.2	2.9	27
1,1,2-Trichloro-1,2,2-trifluoroethane	5.7	7.1	22
1,1-Dichloroethane	5.5	6.7	20
1,1-Dichloroethene	7.0	12	53
Chloroform	0.59	0.71	18
cis-1,2-Dichloroethene	190	210	10
Tetrachloroethene	2.6	3.0	14
trans-1,2-Dichloroethene	5.0	2.5	67
Trichloroethene	650	740	13
Vinyl chloride	0.61	0.76	22

Compound	Concentration (ug/L)		RPD
	86-WOPT-1018DL	86-WOPT-1019DL	
cis-1,2-Dichloroethene	150	160	6
Trichloroethene	470	530	12

## XVII. Field Blanks

Samples 86-WOPT-515 and 86-WOPT-1017 were identified as trip blanks. No volatile contaminants were found in these blanks with the following exceptions:

Trip Blank ID	Compound	Concentration (ug/L)
86-WOPT-515	Acetone	5.1
	cis-1,2-Dichloroethene	0.17
	Methylene chloride	0.63
	Trichloroethene	0.50
86-WOPT-1017	Acetone	5.2
	Methylene chloride	0.41
	Trichloroethene	0.35

Moffett Air Field, Building 88, CTO 86  
Volatiles - Data Qualification Summary - SDG 47118

SDG	Sample	Compound	Flag	A or P	Reason
47118	86-WOPT-515 86-WOPT-516** 86-WOPT-517 86-WOPT-518 86-WOPT-519 86-WOPT-520** 86-WOPT-521 86-WOPT-529 86-WOPT-530** 86-WOPT-531 86-WOPT-1016** 86-WOPT-1017 86-WOPT-1018 86-WOPT-1019 86-WOPT-1020 86-WOPT-1021** 86-WOPT-1028 86-WOPT-1029 86-WOPT-1030 86-WOPT-1031** 86-WOPT-1032	Chloroethane  Acetone	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Initial calibration (%RSD)
47118	86-WOPT-515 86-WOPT-516** 86-WOPT-517 86-WOPT-518 86-WOPT-519 86-WOPT-1017	Bromomethane  Chloroethane	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
47118	86-WOPT-520** 86-WOPT-521 86-WOPT-529 86-WOPT-530** 86-WOPT-531 86-WOPT-1016** 86-WOPT-1018 86-WOPT-1019 86-WOPT-1020 86-WOPT-1021** 86-WOPT-1028 86-WOPT-1029 86-WOPT-1030 86-WOPT-1031** 86-WOPT-1032	Chloromethane Bromomethane Chloroethane	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)

SDG	Sample	Compound	Flag	A or P	Reason
47118	86-WOPT-516** 86-WOPT-517 86-WOPT-518 86-WOPT-519 86-WOPT-520** 86-WOPT-521 86-WOPT-529 86-WOPT-1016** 86-WOPT-1018 86-WOPT-1019 86-WOPT-1020 86-WOPT-1021** 86-WOPT-1029 86-WOPT-1030 86-WOPT-1031** 86-WOPT-1032	cis-1,2-Dichloroethene Trichloroethene	J (all detects) J (all detects)	A	Compound quantitation and CRQLs
47118	86-WOPT-530**	cis-1,2-Dichloroethene Trichloroethene Tetrachloroethene	J (all detects) J (all detects) J (all detects)	A	Compound quantitation and CRQLs
47118	86-WOPT-531	1,1,2-Trichloro-1,2,2-trifluoroethane cis-1,2-Dichloroethene Trichloroethene Tetrachloroethene	J (all detects) J (all detects) J (all detects) J (all detects)	A	Compound quantitation and CRQLs
47118	86-WOPT-1028	1,1-Dichloroethene cis-1,2-Dichloroethene	J (all detects) J (all detects)	A	Compound quantitation and CRQLs

**Moffett Air Field, Building 88, CTO 86**  
**Volatiles - Laboratory Blank Data Qualification Summary - SDG 47118**

SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P
47118	86-WOPT-515	cis-1,2-Dichloroethene Trichloroethene	0.5U ug/L 0.50U ug/L	A
47118	86-WOPT-1017	Trichloroethene	0.5U ug/L	A

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Air Field, Building 88, CTO 86  
**Collection Date:** April 13, 2005  
**LDC Report Date:** May 26, 2005  
**Matrix:** Soil/Water  
**Parameters:** Volatiles  
**Validation Level:** EPA Level III & IV  
**Laboratory:** APPL, Inc.  
**Sample Delivery Group (SDG):** 47118

**Sample Identification**

86-WOPT-522  
86-WOPT-522DL  
86-WOPT-523  
86-WOPT-523DL  
86-WOPT-524  
86-WOPT-525\*\*  
86-WOPT-526  
86-WOPT-527  
86-WOPT-528  
86-WOPT-1022\*\*  
86-WOPT-1022DL\*\*  
86-WOPT-1023  
86-WOPT-1024  
86-WOPT-1025  
86-WOPT-1026  
86-WOPT-1026DL  
86-WOPT-1027  
86-WOPT-522MS  
86-WOPT-522MSD

\*\*Indicates sample underwent EPA Level IV review



## Introduction

This data review covers 17 soil samples and 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 15.0% for each individual compound and less than or equal to 30.0% for calibration check compounds (CCCs).

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination ( $r^2$ ) was greater than or equal to 0.990.

Average relative response factors (RRF) for all system performance check compounds (SPCCs) were within method and validation criteria.

## IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 20.0% for all compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
4/13/05 (0413C03S)	Acetone	38	86-WOPT-1022**	J (all detects) UJ (all non-detects)	A
	2-Butanone	27	86-WOPT-1023		
	1,1,1-Trichloroethane	22	86-WOPT-1024		
	Carbon tetrachloride	21	86-WOPT-1025		
	1,2-Dichloroethane	27	050413S		

Date	Compound	%D	Associated Samples	Flag	A or P
4/14/05	Chloromethane	22	86-WOPT-522 86-WOPT-523 86-WOPT-524 86-WOPT-525** 86-WOPT-526 86-WOPT-527 86-WOPT-1026 86-WOPT-522MS 86-WOPT-522MSD 050414S	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A
	Bromomethane	21			
4/13/05 (0413M23W)	Bromomethane	22	All water samples in SDG 47118	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A
	Acetone	23			

All of the continuing calibration RRF values for all system performance check compounds (SPCCs) were within method and validation criteria.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Compound	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
86-WOPT-522MS/MSD (86-WOPT-522)	1,1-Dichloroethene	27.1 (65-135)	36.2 (65-135)	-	J (all detects) UJ (all non-detects)	A
	Chlorobenzene	63.0 (65-135)	58.0 (65-135)	-	J (all detects) UJ (all non-detects)	

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## IX. Regional Quality Assurance and Quality Control

Not applicable.

## X. Internal Standards

All internal standard areas and retention times were within QC limits with the following exceptions:

Sample	Internal Standards	Area (Limits)	Compound	Flag	A or P
86-WOPT-522	1,4-Dichlorobenzene-d4	184853 (195441-781762)	4-Methyl-2-pentanone 1,1,2,2-Tetrachloroethane	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A

## XI. Target Compound Identifications

All target compound identifications were within validation criteria for samples on which an EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
86-WOPT-522 86-WOPT-1026	Trichloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	A
86-WOPT-523	cis-1,2-Dichloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	A
86-WOPT-1022**	cis-1,2-Dichloroethene Trichloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects)	A

Raw data were not evaluated for the samples reviewed by Level III criteria.

## XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

#### **XIV. System Performance**

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

#### **XV. Overall Assessment**

Data flags are summarized at the end of this report if data has been qualified.

#### **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

#### **XVII. Field Blanks**

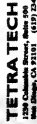
Samples 86-WOPT-528 and 86-WOPT-1027 were identified as equipment rinsates. No volatile contaminants were found in these blanks.

**Moffett Air Field, Building 88, CTO 86**  
**Volatiles - Data Qualification Summary - SDG 47118**

SDG	Sample	Compound	Flag	A or P	Reason
47118	86-WOPT-1022** 86-WOPT-1023 86-WOPT-1024 86-WOPT-1025	Acetone 2-Butanone 1,1,1-Trichloroethane Carbon tetrachloride 1,2-Dichloroethane	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
47118	86-WOPT-522 86-WOPT-523 86-WOPT-524 86-WOPT-525** 86-WOPT-526 86-WOPT-527 86-WOPT-1026	Chloromethane Bromomethane	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
47118	86-WOPT-528 86-WOPT-1027	Bromomethane Acetone	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
47118	86-WOPT-522	1,1-Dichloroethene Chlorobenzene	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicates (%R)
47118	86-WOPT-522	4-Methyl-2-pentanone 1,1,2,2-Tetrachloroethane	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Internal standards (area)
47118	86-WOPT-522 86-WOPT-1026	Trichloroethene	J (all detects)	A	Compound quantitation and CRQLs
47118	86-WOPT-523	cis-1,2-Dichloroethene	J (all detects)	A	Compound quantitation and CRQLs
47118	86-WOPT-1022**	cis-1,2-Dichloroethene Trichloroethene	J (all detects) J (all detects)	A	Compound quantitation and CRQLs

**Moffett Air Field, Building 88, CTO 86**  
**Volatiles - Laboratory Blank Data Qualification Summary - SDG 47118**

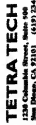
No Sample Data Qualified in this SDG



NUMBER 10361

White - Laboratory: Pink - Laboratory: Canary - Project File; Manila - Data Management

0647143-12



NUMBER 10362

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004743-12





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NUMBER 10374

[illegible]

Data Validation Package  
for  
Moffett Air Field, WATS Building 88, CTO 86  
ARF 47143

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## Case Narrative

ARF: 47143

Project: 1990.086D WATS Bldg 88 Moffett Airfield

State Certification Number: CA1312

Results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

### Sample Receipt Information:

The sample group was received April 14, 2005, at 3.0°C and 4.0°C. The samples were assigned Analytical Request Form (ARF) number 47143. The sample numbers and requested analyses were compared to the chains of custody. The soil TOC analysis was sub-contracted to Columbia Analytical Laboratory. No exception was noted.

Sample Table

CLIENT ID	APPL ID	Matrix	Date Sampled	Date Received
86-WOPT-532	AX17656	SOIL	4/14/05	4/14/05
86-WOPT-533	AX17657	SOIL	4/14/05	4/14/05
86-WOPT-534	AX17658	SOIL	4/14/05	4/14/05
86-WOPT-535	AX17659	SOIL	4/14/05	4/14/05
86-WOPT-536	AX17660	SOIL	4/14/05	4/14/05
86-WOPT-537	AX17661	SOIL	4/14/05	4/14/05
86-WOPT-538	AX17662	WATER	4/14/05	4/14/05
86-WOPT-539	AX17663	WATER	4/14/05	4/14/05
86-WOPT-540	AX17664	WATER	4/14/05	4/14/05
86-WOPT-541	AX17665	WATER	4/14/05	4/14/05
86-WOPT-542	AX17666	WATER	4/14/05	4/14/05
86-WOPT-543	AX17667	WATER	4/14/05	4/14/05
86-WOPT-544	AX17668	WATER	4/14/05	4/14/05
86-WOPT-545	AX17669	SOIL	4/14/05	4/14/05
86-WOPT-546	AX17670	SOIL	4/14/05	4/14/05
86-WOPT-547	AX17671	SOIL	4/14/05	4/14/05
86-WOPT-548	AX17672	SOIL	4/14/05	4/14/05
86-WOPT-549	AX17673	SOIL	4/14/05	4/14/05
86-WOPT-550	AX17674	SOIL	4/14/05	4/14/05
86-WOPT-1033	AX17675	WATER	4/14/05	4/14/05
86-WOPT-1034	AX17676	SOIL	4/14/05	4/14/05
86-WOPT-1035	AX17677	SOIL	4/14/05	4/14/05
86-WOPT-1036	AX17678	SOIL	4/14/05	4/14/05
86-WOPT-1037	AX17679	SOIL	4/14/05	4/14/05
86-WOPT-1038	AX17680	SOIL	4/14/05	4/14/05
86-WOPT-1039	AX17681	SOIL	4/14/05	4/14/05
86-WOPT-1040	AX17682	WATER	4/14/05	4/14/05

86-WOPT-1041	AX17683	WATER	4/14/05	4/14/05
86-WOPT-1042	AX17684	WATER	4/14/05	4/14/05
86-WOPT-1043	AX17685	WATER	4/14/05	4/14/05
86-WOPT-1044	AX17686	WATER	4/14/05	4/14/05
86-WOPT-1045	AX17687	WATER	4/14/05	4/14/05
86-WOPT-1046	AX17688	WATER	4/14/05	4/14/05
86-WOPT-1047	AX17689	SOIL	4/14/05	4/14/05
86-WOPT-1048	AX17690	SOIL	4/14/05	4/14/05
86-WOPT-1049	AX17691	SOIL	4/14/05	4/14/05
86-WOPT-1050	AX17692	SOIL	4/14/05	4/14/05
86-WOPT-1051	AX17693	SOIL	4/14/05	4/14/05
86-WOPT-1052	AX17694	SOIL	4/14/05	4/14/05

# EPA Method 8260B and CLP Volatiles

## Volatile Organic Analysis

### Sample Preparation:

The samples were purged according to EPA method 5030B, 5035, and CLP. Trichloroethene was reported in addition to cis-1,2-Dichloroethene for the dilution for sample 86-WOPT-546 due to a significant difference when compared to the undiluted result. The dilution for Cis-1,2-Dichloroethene and Trichloroethene on sample 86-WOPT-1045 were analyzed on the twenty-eight day from sample due to an analyst error. All other holding times were met.

### Sample Analysis Information:

The samples were analyzed according to the method using a Hewlett Packard Gas Chromatograph with a mass spectrometer detector.

### Quality Control/Assurance

#### Calibrations:

Initial and continuing calibrations were performed according to the method. For the continuing calibration verification performed on Chico file ID: 0414C08S.D, Bromomethane had a 33%D. For the continuing calibration performed on Chico file ID: 0415C02S.D, 2-Hexanone had a 39%D and Bromoform had a 24%D. For the continuing calibration performed on Neo file ID: 0414N22W.D, Chloromethane had a 28%D, Bromomethane had a 27%D, Chloroethane had a 28%D, and Acetone had a 34%D. For the continuing calibration performed on Max file ID: 0414M23W.D, Bromomethane had a 29%D. All calibration criteria were met.

#### Blanks:

For the 050414BN method blank, Trichloroethene was detected below the reporting limit but above the MDL at  $0.31\mu\text{g/L}$ . For the 050415BN method blank, Trichloroethene was detected below the reporting limit but above the MDL at  $0.21\mu\text{g/L}$  and Acetone below the reporting limit but above the MDL at  $2.8\mu\text{g/L}$ . For the 050415AC method blank, Methylene chloride was detected below the reporting limit but above the MDL at  $7.8\mu\text{g/kg}$ . No other target analyte was detected above the reporting limits in the method blanks.

#### Spikes:

Laboratory Control Spikes (LCS) were used for quality assurance. A second-source standard was used for the LCS. All spike and second-source criteria were met.

MS/MSD analyses were requested on samples 86-WOPT-532 and 86-WOPT-1043. For the MS/MSD on sample 86-WOPT-532, Trichloroethene recovered above the 135% upper control limit at 189% and 156%. For the MS/MSD performed on sample 86-WOPT, 1,1-Dichloroethene recovered below the 75% lower control limit at -4.0% and 16.0% and Trichloroethene below the

71% lower control limit at -990% and -730%. All other recoveries were acceptable.

#### **Surrogates**

Toluene-d8 and Bromofluorobenzene recovered above the 125% upper control limit for the 050512A method blank and the dilution on sample 86-WOPT-1045. For the method blank, Toluene-d8 recovered at 129% and Bromofluorobenzene at 128%. The dilution on sample 86-WOPT-1045 recovered Toluene-d8 recovered at 135% and Bromofluorobenzene at 128%. All other surrogate recoveries were within control limits.

#### **Tuning:**

The instrument was tuned using BFB. All method criteria were met.

#### **Internal Standards**

The internal standard area counts were compared to the mid-point of the initial calibration according to method 8260. Samples 86-WOPT-536, 86-WOPT-545, and 86-WOPT-546 recovered the 1,4-Dichlorobenzene-d4 below the lower control limit. The samples were run at a 50 to 1 dilution. The compounds that exceeded linear calibration range as well as the compounds calculated using the low IS are reported on a second form 1 for these two samples. The compounds that are calculated using the IS are 1,1,2,2-Tetrachloroethane and 4-Methyl-2-Pentanone. All method criteria were met.

#### **Summary:**

No additional problem was encountered.



## **EPA Methods 6010B Metals**

### **Digestion Information:**

The water was digested according to EPA methods 3010A. No exceptions were encountered. All holding times were met.

### **Analysis Information:**

#### **Samples:**

The sample was analyzed for dissolved metals according to EPA method 6010B using a Perkin Elmer Optima 4300DV.

#### **Calibrations:**

Calibrations were performed according to the methods for the initial calibration and the initial calibration verification. The initial calibration verification is prepared from a second source standard.

#### **Blanks:**

Sodium was detected in the 050420A method blank below the reporting limit but above the MDL at 0.23mg/L. No other target metal was detected above the reporting limits in the method blank.

#### **Spikes:**

Laboratory Control Spike (LCS/LCSD), was used for quality assurance. All LCS recoveries were within acceptance limits. A MS/MSD was requested on sample 86-WOPT-1043. For the MS/MSD Calcium was recovered above the 120% upper control limit at 152% and 156%, Iron above the 120% upper control limit at 260% in the MSD, and Magnesium above the 120% upper control limit at 130% in the MSD. All other acceptance criteria were met.

### **Summary:**

No analytical exception is noted. All data are acceptable.

# **EPA Methods 300.0, 310.1 and 9060A**

## **Anions, Carbonates & Bi-carbonates and Total Organic Carbon**

### **Sample Preparation Information:**

A Dionex DX500 ion chromatograph was used for the EPA 300.0 analysis. The TOC was analyzed using a Shimadzu TOC-5050A instrument. The samples were screened down to the MDL.

### **Analysis Information:**

#### **Samples:**

The sample was analyzed according to the methods. A Dionex DX500 ion chromatograph was used for the EPA 300.0 analysis.

#### **Calibrations:**

Calibrations were performed according to the methods for the initial calibration and the initial calibration verification. The initial calibration verification is prepared from a second source standard.

#### **Blanks:**

No target analyte was detected above the reporting limits in the method blanks.

#### **Spikes:**

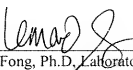
Laboratory Control Spikes (LCS/LCSD) were used for quality assurance. A MS/MSD was requested on sample 86-WOPT-1043. For the MS/MSD, Sulfate recovered below the 80% lower control limit at 76.7% and 76.7%. Acceptance criteria were met.

### **Summary:**

No analytical exception is noted.

## CERTIFICATION

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the hard copy has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

 5/13/05  
\_\_\_\_\_  
Leonard Fong, Ph.D., Laboratory Director / Date

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47143

Sample ID: 86-WOPT-532

APPL ID: AX17656

Sample Collection Date: 4/14/05

QCQ: \$86TTS-050415BC-85798

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 20.2 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	1.0	ug/Kg	4/16/05	4/16/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.6	ug/Kg	4/16/05	4/16/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.60	ug/Kg	4/16/05	4/16/05
EPA 8260B	1,1-Dichloroethane	11	6	1.4	ug/Kg	4/16/05	4/16/05
EPA 8260B	1,1-Dichloroethene	14	6	0.99	ug/Kg	4/16/05	4/16/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.90	ug/Kg	4/16/05	4/16/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.78	ug/Kg	4/16/05	4/16/05
EPA 8260B	2-Butanone	Not detected	63	0.89	ug/Kg	4/16/05	4/16/05
EPA 8260B	2-Hexanone	Not detected	63	0.20	ug/Kg	4/16/05	4/16/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	63	1.2	ug/Kg	4/16/05	4/16/05
EPA 8260B	Acetone	Not detected	130	3.5	ug/Kg	4/16/05	4/16/05
EPA 8260B	Benzene	Not detected	6	0.79	ug/Kg	4/16/05	4/16/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.86	ug/Kg	4/16/05	4/16/05
EPA 8260B	Bromoform	Not detected	6	1.0	ug/Kg	4/16/05	4/16/05
EPA 8260B	Bromomethane	Not detected	13	2.0	ug/Kg	4/16/05	4/16/05
EPA 8260B	Carbon disulfide	Not detected	6	1.4	ug/Kg	4/16/05	4/16/05
EPA 8260B	Carbon tetrachloride	Not detected	6	1.0	ug/Kg	4/16/05	4/16/05
EPA 8260B	Chlorobenzene	Not detected	6	0.61	ug/Kg	4/16/05	4/16/05
EPA 8260B	Chloroethane	Not detected	6	1.9	ug/Kg	4/16/05	4/16/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	4/16/05	4/16/05
EPA 8260B	Chloromethane	Not detected	6	2.3	ug/Kg	4/16/05	4/16/05
EPA 8260B	cis-1,2-Dichloroethene	280	6	1.3	ug/Kg	4/16/05	4/16/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.59	ug/Kg	4/16/05	4/16/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.1	ug/Kg	4/16/05	4/16/05
EPA 8260B	Ethylbenzene	Not detected	6	0.80	ug/Kg	4/16/05	4/16/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/16/05	4/16/05
EPA 8260B	Methylene chloride	Not detected	63	5.7	ug/Kg	4/16/05	4/16/05
EPA 8260B	Styrene	Not detected	6	0.86	ug/Kg	4/16/05	4/16/05
EPA 8260B	Tetrachloroethene	Not detected	6	0.68	ug/Kg	4/16/05	4/16/05
EPA 8260B	Toluene	Not detected	6	0.81	ug/Kg	4/16/05	4/16/05
EPA 8260B	trans-1,2-Dichloroethene	1.8 J	6	1.7	ug/Kg	4/16/05	4/16/05

J = Estimated value, below quantitation limit.

Run #: 0415C35  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:44:00 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## EPA 3260B

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APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47143

**Sample ID: 86-WOPT-532**

**APPL ID: AX17656**

Sample Collection Date: 4/14/05

QCG: \$86TTS-050415BC-85798

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.54	ug/Kg	4/16/05	4/16/05
EPA 8260B	Trichloroethene	24	6	0.89	ug/Kg	4/16/05	4/16/05
EPA 8260B	Vinyl Acetate	Not detected	63	1.3	ug/Kg	4/16/05	4/16/05
EPA 8260B	Vinyl chloride	Not detected	6	2.1	ug/Kg	4/16/05	4/16/05
EPA 8260B	Xylenes	Not detected	19	0.85	ug/Kg	4/16/05	4/16/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	116	52-149		%	4/16/05	4/16/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	103	65-135		%	4/16/05	4/16/05
EPA 8260B	Surrogate recovery: Toluene-d8	94.2	65-135		%	4/16/05	4/16/05

J = Estimated value, below quantitation limit.

Run #: 0415C35  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed 4/20/05 11:44:00 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47143

Sample ID: 86-WOPT-533

APPL ID: AX17657

Sample Collection Date: 4/14/05

CCG: \$86TTS-050414BC-85740

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 13.9 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	0.94	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.4	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.56	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,1-Dichloroethane	Not detected	6	1.3	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,1-Dichloroethene	Not detected	6	0.92	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.84	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.72	ug/Kg	4/14/05	4/14/05
EPA 8260B	2-Butanone	Not detected	58	0.82	ug/Kg	4/14/05	4/14/05
EPA 8260B	2-Hexanone	Not detected	58	0.19	ug/Kg	4/14/05	4/14/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	58	1.1	ug/Kg	4/14/05	4/14/05
EPA 8260B	Acetone	Not detected	120	3.3	ug/Kg	4/14/05	4/14/05
EPA 8260B	Benzene	Not detected	6	0.73	ug/Kg	4/14/05	4/14/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.80	ug/Kg	4/14/05	4/14/05
EPA 8260B	Bromoform	Not detected	6	0.93	ug/Kg	4/14/05	4/14/05
EPA 8260B	Bromomethane	Not detected	12	1.9	ug/Kg	4/14/05	4/14/05
EPA 8260B	Carbon disulfide	Not detected	6	1.2	ug/Kg	4/14/05	4/14/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.93	ug/Kg	4/14/05	4/14/05
EPA 8260B	Chlorobenzene	Not detected	6	0.57	ug/Kg	4/14/05	4/14/05
EPA 8260B	Chloroethane	Not detected	6	1.8	ug/Kg	4/14/05	4/14/05
EPA 8260B	Chloroform	Not detected	6	1.7	ug/Kg	4/14/05	4/14/05
EPA 8260B	Chloromethane	Not detected	6	2.1	ug/Kg	4/14/05	4/14/05
EPA 8260B	cis-1,2-Dichloroethene	17	6	1.2	ug/Kg	4/14/05	4/14/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.55	ug/Kg	4/14/05	4/14/05
EPA 8260B	Dibromochloromethane	Not detected	6	0.99	ug/Kg	4/14/05	4/14/05
EPA 8260B	Ethylbenzene	Not detected	6	0.74	ug/Kg	4/14/05	4/14/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.0	ug/Kg	4/14/05	4/14/05
EPA 8260B	Methylene chloride	Not detected	58	5.3	ug/Kg	4/14/05	4/14/05
EPA 8260B	Styrene	Not detected	6	0.80	ug/Kg	4/14/05	4/14/05
EPA 8260B	Tetrachloroethene	Not detected	6	0.63	ug/Kg	4/14/05	4/14/05
EPA 8260B	Toluene	Not detected	6	0.75	ug/Kg	4/14/05	4/14/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.6	ug/Kg	4/14/05	4/14/05

Run #: 0414C13

Instrument: Chico

Sequence: C050413

Dilution Factor: 1

Initials: LF

Printed: 4/20/05 11:44:00 AM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

## EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: **86-WOPT-533**

Sample Collection Date: 4/14/05

ARF: 47143

APPL ID: **AX17657**

QCG: \$86TTS-050414BC-85740

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.50	ug/Kg	4/14/05	4/14/05
EPA 8260B	Trichloroethene	56	6	0.82	ug/Kg	4/14/05	4/14/05
EPA 8260B	Vinyl Acetate	Not detected	58	1.2	ug/Kg	4/14/05	4/14/05
EPA 8260B	Vinyl chloride	Not detected	6	2.0	ug/Kg	4/14/05	4/14/05
EPA 8260B	Xylenes	Not detected	17	0.79	ug/Kg	4/14/05	4/14/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	104	52-149		%	4/14/05	4/14/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	96.3	65-135		%	4/14/05	4/14/05
EPA 8260B	Surrogate recovery: Toluene-d8	94.5	65-135		%	4/14/05	4/14/05

Run #: 0414C13  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed 4/20/05 11:44:00 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47143

Sample ID: 86-WOPT-534

APPL ID: AX17658

Sample Collection Date: 4/14/05

QCG: \$86TTS-050414BC-85740

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 17.8 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	0.99	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.5	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.58	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,1-Dichloroethane	1.5 J	6	1.4	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,1-Dichloroethene	4.3 J	6	0.96	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.88	ug/Kg	4/14/05	4/14/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.75	ug/Kg	4/14/05	4/14/05
EPA 8260B	2-Butanone	Not detected	61	0.86	ug/Kg	4/14/05	4/14/05
EPA 8260B	2-Hexanone	Not detected	61	0.19	ug/Kg	4/14/05	4/14/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	61	1.1	ug/Kg	4/14/05	4/14/05
EPA 8260B	Acetone	Not detected	120	3.4	ug/Kg	4/14/05	4/14/05
EPA 8260B	Benzene	Not detected	6	0.77	ug/Kg	4/14/05	4/14/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.84	ug/Kg	4/14/05	4/14/05
EPA 8260B	Bromoform	Not detected	6	0.97	ug/Kg	4/14/05	4/14/05
EPA 8260B	Bromomethane	Not detected	12	2.0	ug/Kg	4/14/05	4/14/05
EPA 8260B	Carbon disulfide	Not detected	6	1.3	ug/Kg	4/14/05	4/14/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.97	ug/Kg	4/14/05	4/14/05
EPA 8260B	Chlorobenzene	Not detected	6	0.60	ug/Kg	4/14/05	4/14/05
EPA 8260B	Chloroethane	Not detected	6	1.9	ug/Kg	4/14/05	4/14/05
EPA 8260B	Chloroform	Not detected	6	1.7	ug/Kg	4/14/05	4/14/05
EPA 8260B	Chloromethane	Not detected	6	2.2	ug/Kg	4/14/05	4/14/05
EPA 8260B	cis-1,2-Dichloroethene	47	6	1.3	ug/Kg	4/14/05	4/14/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.57	ug/Kg	4/14/05	4/14/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.0	ug/Kg	4/14/05	4/14/05
EPA 8260B	Ethylbenzene	Not detected	6	0.78	ug/Kg	4/14/05	4/14/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/14/05	4/14/05
EPA 8260B	Methylene chloride	Not detected	61	5.6	ug/Kg	4/14/05	4/14/05
EPA 8260B	Styrene	Not detected	6	0.84	ug/Kg	4/14/05	4/14/05
EPA 8260B	Tetrachloroethene	30	6	0.66	ug/Kg	4/14/05	4/14/05
EPA 8260B	Toluene	Not detected	6	0.79	ug/Kg	4/14/05	4/14/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.6	ug/Kg	4/14/05	4/14/05

J = Estimated value, below quantitation limit.

Run #: 0414C14  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:44:00 AM  
APPL-F1-SC-MCRes:MCPQL-REG MDLs



**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47143

Sample ID: 86-WOPT-534

APPL ID: AX17658

Sample Collection Date: 4/14/05

QCG: \$86TTS-050414BC-85740

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.52	ug/Kg	4/14/05	4/14/05
EPA 8260B	Trichloroethene	360	6	0.86	ug/Kg	4/14/05	4/14/05
EPA 8260B	Vinyl Acetate	Not detected	61	1.2	ug/Kg	4/14/05	4/14/05
EPA 8260B	Vinyl chloride	Not detected	6	2.0	ug/Kg	4/14/05	4/14/05
EPA 8260B	Xylenes	Not detected	18	0.83	ug/Kg	4/14/05	4/14/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	104	52-149		%	4/14/05	4/14/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	103	65-135		%	4/14/05	4/14/05
EPA 8260B	Surrogate recovery: Toluene-d8	101	65-135		%	4/14/05	4/14/05

J = Estimated value, below quantitation limit.

Run #: 0414C14  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:44:00 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47143

Sample ID: 86-WOPT-535

APPL ID: AX17659

Sample Collection Date: 4/14/05

QCG: \$86TTS-050414BC-85740

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 23.0 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	7	1.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	7	1.6	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	7	0.62	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1-Dichloroethane	1.6 J	7	1.5	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1-Dichloroethene	6.5 J	7	1.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,2-Dichloroethane	Not detected	7	0.94	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,2-Dichloropropane	Not detected	7	0.81	ug/Kg	4/15/05	4/15/05
EPA 8260B	2-Butanone	Not detected	65	0.92	ug/Kg	4/15/05	4/15/05
EPA 8260B	2-Hexanone	Not detected	65	0.21	ug/Kg	4/15/05	4/15/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	65	1.2	ug/Kg	4/15/05	4/15/05
EPA 8260B	Acetone	Not detected	130	3.6	ug/Kg	4/15/05	4/15/05
EPA 8260B	Benzene	Not detected	7	0.82	ug/Kg	4/15/05	4/15/05
EPA 8260B	Bromodichloromethane	Not detected	7	0.90	ug/Kg	4/15/05	4/15/05
EPA 8260B	Bromoform	Not detected	7	1.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	Bromomethane	Not detected	13	2.1	ug/Kg	4/15/05	4/15/05
EPA 8260B	Carbon disulfide	Not detected	7	1.4	ug/Kg	4/15/05	4/15/05
EPA 8260B	Carbon tetrachloride	Not detected	7	1.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chlorobenzene	Not detected	7	0.64	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chloroethane	Not detected	7	2.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chloroform	Not detected	7	1.9	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chloromethane	Not detected	7	2.4	ug/Kg	4/15/05	4/15/05
EPA 8260B	cis-1,2-Dichloroethene	59	7	1.4	ug/Kg	4/15/05	4/15/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	7	0.61	ug/Kg	4/15/05	4/15/05
EPA 8260B	Dibromochloromethane	Not detected	7	1.1	ug/Kg	4/15/05	4/15/05
EPA 8260B	Ethylbenzene	Not detected	7	0.83	ug/Kg	4/15/05	4/15/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	7	1.2	ug/Kg	4/15/05	4/15/05
EPA 8260B	Methylene chloride	Not detected	65	6.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	Styrene	Not detected	7	0.90	ug/Kg	4/15/05	4/15/05
EPA 8260B	Tetrachloroethene	42	7	0.70	ug/Kg	4/15/05	4/15/05
EPA 8260B	Toluene	Not detected	7	0.84	ug/Kg	4/15/05	4/15/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	7	1.8	ug/Kg	4/15/05	4/15/05

J = Estimated value, below quantitation limit.

Run #: 0414C15  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed 4/20/05 11:44 00 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47143

Sample ID: 86-WOPT-535

APPL ID: AX17659

Sample Collection Date: 4/14/05

QCG: \$86TTS-050414BC-85740

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	7	0.56	ug/Kg	4/15/05	4/15/05
EPA 8260B	Trichloroethene	510	7	0.92	ug/Kg	4/15/05	4/15/05
EPA 8260B	Vinyl Acetate	Not detected	65	1.3	ug/Kg	4/15/05	4/15/05
EPA 8260B	Vinyl chloride	Not detected	7	2.2	ug/Kg	4/15/05	4/15/05
EPA 8260B	Xylenes	Not detected	19	0.88	ug/Kg	4/15/05	4/15/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	104	52-149		%	4/15/05	4/15/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	100	65-135		%	4/15/05	4/15/05
EPA 8260B	Surrogate recovery: Toluene-d8	98.9	65-135		%	4/15/05	4/15/05

J = Estimated value, below quantitation limit.

Run #: 0414C15  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:44:00 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-536

Sample Collection Date: 4/14/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47143

APPL ID: AX17660

QCG: \$86TTS-050414BC-85740

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 10.7 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	0.91	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.4	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.54	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1-Dichloroethane	Not detected	6	1.3	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1-Dichloroethene	3.4 J	6	0.88	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.81	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.69	ug/Kg	4/15/05	4/15/05
EPA 8260B	2-Butanone	Not detected	56	0.80	ug/Kg	4/15/05	4/15/05
EPA 8260B	2-Hexanone	Not detected	56	0.18	ug/Kg	4/15/05	4/15/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	56	1.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	Acetone	Not detected	110	3.1	ug/Kg	4/15/05	4/15/05
EPA 8260B	Benzene	Not detected	6	0.71	ug/Kg	4/15/05	4/15/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.77	ug/Kg	4/15/05	4/15/05
EPA 8260B	Bromoform	Not detected	6	0.90	ug/Kg	4/15/05	4/15/05
EPA 8260B	Bromomethane	Not detected	11	1.8	ug/Kg	4/15/05	4/15/05
EPA 8260B	Carbon disulfide	Not detected	6	1.2	ug/Kg	4/15/05	4/15/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.90	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chlorobenzene	Not detected	6	0.55	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chloroethane	Not detected	6	1.7	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chloroform	Not detected	6	1.6	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chloromethane	Not detected	6	2.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	cis-1,2-Dichloroethene	18	6	1.2	ug/Kg	4/15/05	4/15/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.53	ug/Kg	4/15/05	4/15/05
EPA 8260B	Dibromochloromethane	Not detected	6	0.95	ug/Kg	4/15/05	4/15/05
EPA 8260B	Ethylbenzene	Not detected	6	0.72	ug/Kg	4/15/05	4/15/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	Methylene chloride	Not detected	56	5.1	ug/Kg	4/15/05	4/15/05
EPA 8260B	Styrene	Not detected	6	0.77	ug/Kg	4/15/05	4/15/05
EPA 8260B	Tetrachloroethene	6.4	6	0.60	ug/Kg	4/15/05	4/15/05
EPA 8260B	Toluene	Not detected	6	0.73	ug/Kg	4/15/05	4/15/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.5	ug/Kg	4/15/05	4/15/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0414C16  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:44:00 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47143

**Sample ID: 86-WOPT-536**

**APPL ID: AX17660**

Sample Collection Date: 4/14/05

QCG: \$86TTS-050414BC-85740

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.48	ug/Kg	4/15/05	4/15/05
EPA 8260B	Trichloroethene	690 E	6	0.80	ug/Kg	4/15/05	4/15/05
EPA 8260B	Vinyl Acetate	Not detected	56	1.1	ug/Kg	4/15/05	4/15/05
EPA 8260B	Vinyl chloride	Not detected	6	1.9	ug/Kg	4/15/05	4/15/05
EPA 8260B	Xylenes	Not detected	17	0.76	ug/Kg	4/15/05	4/15/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	107	52-149		%	4/15/05	4/15/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	91.3	65-135		%	4/15/05	4/15/05
EPA 8260B	Surrogate recovery: Toluene-d8	105	65-135		%	4/15/05	4/15/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

Run #: 0414C16  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed 4/20/05 11:44:00 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## EPA 8260B

Tetra Tech FW, Inc  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-536

Sample Collection Date: 4/14/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47143

APPL ID: AX17660

QCG: \$86TTD-050417BM-86216

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 10.7 Percent Moisture.)							
EPA 8260B-	1,1,2,2-Tetrachloroethane	Not detected	21	15	ug/Kg	4/18/05	4/18/05
EPA 8260B-	4-Methyl-2-pentanone	Not detected	210	110	ug/Kg	4/18/05	4/18/05
EPA 8260B-	Trichloroethene	1400	28	9.0	ug/Kg	4/18/05	4/18/05
EPA 8260B-	Surrogate recovery: 1,2-Dichloroethane	105	52-149		%	4/18/05	4/18/05
EPA 8260B-	Surrogate recovery: 4-Bromofluorobenz	92.3	65-135		%	4/18/05	4/18/05
EPA 8260B-	Surrogate recovery: Toluene-d8	99.4	65-135		%	4/18/05	4/18/05

Run #: 0417M34  
Instrument: Max  
Sequence: M050414  
Dilution Factor: 50  
Initials: LF

Printed: 5/13/05 10:57:26 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-537

Sample Collection Date: 4/14/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47143

APPL ID: AX17661

QCG: \$86TTS-050414BC-85740

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 9.9 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	0.90	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.4	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.53	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1-Dichloroethane	Not detected	6	1.2	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1-Dichloroethene	2.9 J	6	0.88	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.80	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.69	ug/Kg	4/15/05	4/15/05
EPA 8260B	2-Butanone	Not detected	55	0.79	ug/Kg	4/15/05	4/15/05
EPA 8260B	2-Hexanone	Not detected	55	0.18	ug/Kg	4/15/05	4/15/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	55	1.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	Acetone	Not detected	110	3.1	ug/Kg	4/15/05	4/15/05
EPA 8260B	Benzene	Not detected	6	0.70	ug/Kg	4/15/05	4/15/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.77	ug/Kg	4/15/05	4/15/05
EPA 8260B	Bromoform	Not detected	6	0.89	ug/Kg	4/15/05	4/15/05
EPA 8260B	Bromomethane	Not detected	11	1.8	ug/Kg	4/15/05	4/15/05
EPA 8260B	Carbon disulfide	Not detected	6	1.2	ug/Kg	4/15/05	4/15/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.89	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chlorobenzene	Not detected	6	0.54	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chloroethane	Not detected	6	1.7	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chloroform	Not detected	6	1.6	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chloromethane	Not detected	6	2.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	cis-1,2-Dichloroethene	13	6	1.2	ug/Kg	4/15/05	4/15/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.52	ug/Kg	4/15/05	4/15/05
EPA 8260B	Dibromochloromethane	Not detected	6	0.94	ug/Kg	4/15/05	4/15/05
EPA 8260B	Ethylbenzene	Not detected	6	0.71	ug/Kg	4/15/05	4/15/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	0.99	ug/Kg	4/15/05	4/15/05
EPA 8260B	Methylene chloride	Not detected	55	5.1	ug/Kg	4/15/05	4/15/05
EPA 8260B	Styrene	Not detected	6	0.77	ug/Kg	4/15/05	4/15/05
EPA 8260B	Tetrachloroethene	2.5 J	6	0.60	ug/Kg	4/15/05	4/15/05
EPA 8260B	Toluene	Not detected	6	0.72	ug/Kg	4/15/05	4/15/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.5	ug/Kg	4/15/05	4/15/05

J = Estimated value, below quantitation limit.

Run #: 0414C17  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:44:00 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47143

**Sample ID: 86-WOPT-537**

**APPL ID: AX17661**

Sample Collection Date: 4/14/05

QCG: \$86TTS-050414BC-85740

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.48	ug/Kg	4/15/05	4/15/05
EPA 8260B	Trichloroethene	350	6	0.79	ug/Kg	4/15/05	4/15/05
EPA 8260B	Vinyl Acetate	Not detected	55	1.1	ug/Kg	4/15/05	4/15/05
EPA 8260B	Vinyl chloride	Not detected	6	1.9	ug/Kg	4/15/05	4/15/05
EPA 8260B	Xylenes	Not detected	17	0.75	ug/Kg	4/15/05	4/15/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	106	52-149		%	4/15/05	4/15/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	105	65-135		%	4/15/05	4/15/05
EPA 8260B	Surrogate recovery: Toluene-d8	102	65-135		%	4/15/05	4/15/05

J = Estimated value, below quantitation limit.

Run #: 0414C17  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed 4/20/05 11:44:00 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



## EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-538

Sample Collection Date: 4/14/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47143

APPL ID: AX17662

QCG: \$86TTW-050414BM-8574

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/15/05	4/15/05
EPA 8260B	1,1,1,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/15/05	4/15/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/15/05	4/15/05
EPA 8260B	1,1-Dichloroethane	Not detected	0.5	0.19	ug/L	4/15/05	4/15/05
EPA 8260B	1,1-Dichloroethene	Not detected	0.5	0.30	ug/L	4/15/05	4/15/05
EPA 8260B	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/15/05	4/15/05
EPA 8260B	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/15/05	4/15/05
EPA 8260B	2-Butanone	Not detected	5	0.6	ug/L	4/15/05	4/15/05
EPA 8260B	2-Hexanone	Not detected	5	0.92	ug/L	4/15/05	4/15/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/15/05	4/15/05
EPA 8260B	Acetone	Not detected	5	0.95	ug/L	4/15/05	4/15/05
EPA 8260B	Benzene	Not detected	0.5	0.16	ug/L	4/15/05	4/15/05
EPA 8260B	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/15/05	4/15/05
EPA 8260B	Bromoform	Not detected	0.5	0.14	ug/L	4/15/05	4/15/05
EPA 8260B	Bromomethane	Not detected	1	0.24	ug/L	4/15/05	4/15/05
EPA 8260B	Carbon disulfide	Not detected	0.5	0.2	ug/L	4/15/05	4/15/05
EPA 8260B	Carbon tetrachloride	Not detected	0.5	0.10	ug/L	4/15/05	4/15/05
EPA 8260B	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/15/05	4/15/05
EPA 8260B	Chloroethane	Not detected	0.5	0.21	ug/L	4/15/05	4/15/05
EPA 8260B	Chloroform	Not detected	0.5	0.16	ug/L	4/15/05	4/15/05
EPA 8260B	Chloromethane	Not detected	0.5	0.31	ug/L	4/15/05	4/15/05
EPA 8260B	cis-1,2-Dichloroethene	Not detected	0.5	0.16	ug/L	4/15/05	4/15/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/15/05	4/15/05
EPA 8260B	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/15/05	4/15/05
EPA 8260B	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/15/05	4/15/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/15/05	4/15/05
EPA 8260B	Methylene chloride	Not detected	5	0.35	ug/L	4/15/05	4/15/05
EPA 8260B	Styrene	Not detected	0.5	0.25	ug/L	4/15/05	4/15/05
EPA 8260B	Tetrachloroethene	Not detected	0.5	0.15	ug/L	4/15/05	4/15/05
EPA 8260B	Toluene	Not detected	0.5	0.17	ug/L	4/15/05	4/15/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	0.5	0.19	ug/L	4/15/05	4/15/05

Run #: 0414M32  
Instrument: Max  
Sequence: M050414  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:44:00 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## EPA 8260B

Tetra Tech FW, Inc.  
1940 E Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Blenkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-538

Sample Collection Date: 4/14/05

ARF: 47143

APPL ID: AX17662

QCG: S86TTW-050414BM-8574

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/15/05	4/15/05
EPA 8260B	Trichloroethene	Not detected	0.5	0.16	ug/L	4/15/05	4/15/05
EPA 8260B	Vinyl Acetate	Not detected	5	0.31	ug/L	4/15/05	4/15/05
EPA 8260B	Vinyl chloride	Not detected	0.5	0.23	ug/L	4/15/05	4/15/05
EPA 8260B	Xylenes	Not detected	1.5	0.19	ug/L	4/15/05	4/15/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	103	62-139		%	4/15/05	4/15/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	90.7	75-125		%	4/15/05	4/15/05
EPA 8260B	Surrogate recovery: Toluene-d8	99.4	75-125		%	4/15/05	4/15/05

Run #: 0414M32  
Instrument: Max  
Sequence: M050414  
Dilution Factor: 1  
Initials: LF

Printed 4/20/05 11:44:00 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47143

Sample ID: 86-WOPT-539

APPL ID: AX17663

Sample Collection Date: 4/14/05

QCG: \$C42VT-050414BN-85744

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	0.52	0.5	0.14	ug/L	4/15/05	4/15/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/15/05	4/15/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	0.93	0.5	0.21	ug/L	4/15/05	4/15/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/15/05	4/15/05
CLP VOL	1,1-Dichloroethane	30	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	1,1-Dichloroethene	43	0.5	0.30	ug/L	4/15/05	4/15/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/15/05	4/15/05
CLP VOL	1,2-Dichloropropane	0.72	0.5	0.17	ug/L	4/15/05	4/15/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/15/05	4/15/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/15/05	4/15/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/15/05	4/15/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/15/05	4/15/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/15/05	4/15/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/15/05	4/15/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/15/05	4/15/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/15/05	4/15/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/15/05	4/15/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/15/05	4/15/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/15/05	4/15/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/15/05	4/15/05
CLP VOL	Chloroform	0.29 J	0.5	0.16	ug/L	4/15/05	4/15/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/15/05	4/15/05
CLP VOL	cis-1,2-Dichloroethene	1400 E	0.5	0.16	ug/L	4/15/05	4/15/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/15/05	4/15/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/15/05	4/15/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/15/05	4/15/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/15/05	4/15/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0414N28  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed 4/20/05 11:44:00 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-539

Sample Collection Date: 4/14/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47143

APPL ID: AX17663

QCG: \$C42VT-050414BN-85744

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	300 E	0.5	0.15	ug/L	4/15/05	4/15/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/15/05	4/15/05
CLP VOL	trans-1,2-Dichloroethene	9.5	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/15/05	4/15/05
CLP VOL	Trichloroethene	700 E	0.5	0.16	ug/L	4/15/05	4/15/05
CLP VOL	Vinyl Chloride	1.7	0.5	0.23	ug/L	4/15/05	4/15/05
CLP VOL	Surrogate Recovery (BFB)	99.0	75-125		%	4/15/05	4/15/05
CLP VOL	Surrogate Recovery (DCA)	111	62-139		%	4/15/05	4/15/05
CLP VOL	Surrogate Recovery (TOL)	95.5	75-125		%	4/15/05	4/15/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0414N28  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:44:00 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Eldg 88 Moffett Airfield

Sample ID: 86-WOPT-540

Sample Collection Date: 4/14/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47143

APPL ID: AX17664

QCG: \$C42VT-050414BN-85744

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/15/05	4/15/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/15/05	4/15/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	0.5	0.21	ug/L	4/15/05	4/15/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/15/05	4/15/05
CLP VOL	1,1-Dichloroethane	Not detected	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	1,1-Dichloroethene	Not detected	0.5	0.30	ug/L	4/15/05	4/15/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/15/05	4/15/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/15/05	4/15/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/15/05	4/15/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/15/05	4/15/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/15/05	4/15/05
CLP VOL	Acetone	7.6	5	0.95	ug/L	4/15/05	4/15/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/15/05	4/15/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/15/05	4/15/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/15/05	4/15/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/15/05	4/15/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/15/05	4/15/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/15/05	4/15/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/15/05	4/15/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/15/05	4/15/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	4/15/05	4/15/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/15/05	4/15/05
CLP VOL	cis-1,2-Dichloroethene	Not detected	0.5	0.16	ug/L	4/15/05	4/15/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/15/05	4/15/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/15/05	4/15/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	Methylene Chloride	0.57	0.5	0.35	ug/L	4/15/05	4/15/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/15/05	4/15/05

J = Estimated value, below quantitation limit.

Run #: 0414N27  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:44:00 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-540

Sample Collection Date: 4/14/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47143

APPL ID: AX17664

QCG: SC42VT-050414BN-85744

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	Not detected	0.5	0.15	ug/L	4/15/05	4/15/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/15/05	4/15/05
CLP VOL	trans-1,2-Dichloroethene	Not detected	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/15/05	4/15/05
CLP VOL	Trichloroethene	0.25 J	0.5	0.16	ug/L	4/15/05	4/15/05
CLP VOL	Vinyl Chloride	Not detected	0.5	0.23	ug/L	4/15/05	4/15/05
CLP VOL	Surrogate Recovery (BFB)	110	75-125		%	4/15/05	4/15/05
CLP VOL	Surrogate Recovery (DCA)	109	62-139		%	4/15/05	4/15/05
CLP VOL	Surrogate Recovery (TOL)	105	75-125		%	4/15/05	4/15/05

J = Estimated value, below quantitation limit.

Run #: 0414N27  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:44:00 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-541

Sample Collection Date: 4/14/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47143

APPL ID: AX17665

QCG: \$C42VT-050414BN-85744

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/15/05	4/15/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/15/05	4/15/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	1.2	0.5	0.21	ug/L	4/15/05	4/15/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/15/05	4/15/05
CLP VOL	1,1-Dichloroethane	19	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	1,1-Dichloroethene	29	0.5	0.30	ug/L	4/15/05	4/15/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/15/05	4/15/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/15/05	4/15/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/15/05	4/15/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/15/05	4/15/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/15/05	4/15/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/15/05	4/15/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/15/05	4/15/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/15/05	4/15/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/15/05	4/15/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/15/05	4/15/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/15/05	4/15/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/15/05	4/15/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/15/05	4/15/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/15/05	4/15/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	4/15/05	4/15/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/15/05	4/15/05
CLP VOL	cis-1,2-Dichloroethene	1400 E	0.5	0.16	ug/L	4/15/05	4/15/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/15/05	4/15/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/15/05	4/15/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/15/05	4/15/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/15/05	4/15/05

E = The reported value exceeds linear range.

Run #: 0414N29  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed 4/20/05 11:44:00 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: **96-WOPT-541**

Sample Collection Date: 4/14/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47143

APPL ID: **AX17665**

QCG: SC42VT-050414BN-85744

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	22	0.5	0.15	ug/L	4/15/05	4/15/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/15/05	4/15/05
CLP VOL	trans-1,2-Dichloroethene	70	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/15/05	4/15/05
CLP VOL	Trichloroethene	530 E	0.5	0.16	ug/L	4/15/05	4/15/05
CLP VOL	Vinyl Chloride	2.0	0.5	0.23	ug/L	4/15/05	4/15/05
CLP VOL	Surrogate Recovery (BFB)	102	75-125		%	4/15/05	4/15/05
CLP VOL	Surrogate Recovery (DCA)	110	62-139		%	4/15/05	4/15/05
CLP VOL	Surrogate Recovery (TOL)	102	75-125		%	4/15/05	4/15/05

E = The reported value exceeds linear range.

Run #: 0414N29  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed 4/20/05 11:44:00 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-541**

Sample Collection Date: 4/14/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47143

**APPL ID: AX17665**

QCG: SC42VD-050417AN-85826

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	1500	25	8.00	ug/L	4/18/05	4/18/05
CLP VOL	Trichloroethene	360	25	8.00	ug/L	4/18/05	4/18/05
CLP VOL	Surrogate Recovery (BFB)	104	75-125		%	4/18/05	4/18/05
CLP VOL	Surrogate Recovery (DCA)	122	62-139		%	4/18/05	4/18/05
CLP VOL	Surrogate Recovery (TOL)	99.4	75-125		%	4/18/05	4/18/05

Run #: 0417N15  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 50  
Initials: LF

Printed: 4/20/05 5:10:02 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1950.086D WATS Bldg 88 Moffett Airfield

ARF: 47143

Sample ID: 86-WOPT-542

APPL ID: AX17666

Sample Collection Date: 4/14/05

CCG: SC42VT-050414BN-85744

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	1.8	0.5	0.14	ug/L	4/15/05	4/15/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/15/05	4/15/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	30	0.5	0.21	ug/L	4/15/05	4/15/05
CLP VOL	1,1,2-Trichloroethane	0.20 J	0.5	0.2	ug/L	4/15/05	4/15/05
CLP VOL	1,1-Dichloroethane	13	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	1,1-Dichloroethene	28	0.5	0.30	ug/L	4/15/05	4/15/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/15/05	4/15/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/15/05	4/15/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/15/05	4/15/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/15/05	4/15/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/15/05	4/15/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/15/05	4/15/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/15/05	4/15/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/15/05	4/15/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/15/05	4/15/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/15/05	4/15/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/15/05	4/15/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/15/05	4/15/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/15/05	4/15/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/15/05	4/15/05
CLP VOL	Chloroform	0.33 J	0.5	0.16	ug/L	4/15/05	4/15/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/15/05	4/15/05
CLP VOL	cis-1,2-Dichloroethene	250 E	0.5	0.16	ug/L	4/15/05	4/15/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/15/05	4/15/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/15/05	4/15/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/15/05	4/15/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/15/05	4/15/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0414N30  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed 4/20/05 11:44:00 AM  
APPL-F1-SC-MCRes/MCPL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-542

Sample Collection Date: 4/14/05

ARF: 47143

APPL ID: AX17666

QCG: SC42VT-050414BN-85744

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	2.9	0.5	0.15	ug/L	4/15/05	4/15/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/15/05	4/15/05
CLP VOL	trans-1,2-Dichloroethene	2.0	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/15/05	4/15/05
CLP VOL	Trichloroethene	1200 E	0.5	0.16	ug/L	4/15/05	4/15/05
CLP VOL	Vinyl Chloride	Not detected	0.5	0.23	ug/L	4/15/05	4/15/05
CLP VOL	Surrogate Recovery (BFB)	103	75-125		%	4/15/05	4/15/05
CLP VOL	Surrogate Recovery (DCA)	112	62-139		%	4/15/05	4/15/05
CLP VOL	Surrogate Recovery (TOL)	99.6	75-125		%	4/15/05	4/15/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

**AMENDED PAGE**

Run #: 0414N30  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 5/27/05 8:02:52 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-542**

Sample Collection Date: 4/14/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47143

**APPL ID: AX17666**

QCG: SC42VD-050417AN-85826

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	190	25	8.00	ug/L	4/18/05	4/18/05
CLP VOL	Trichloroethene	1200	25	8.00	ug/L	4/18/05	4/18/05
CLP VOL	Surrogate Recovery (BFB)	103	75-125		%	4/18/05	4/18/05
CLP VOL	Surrogate Recovery (DCA)	116	62-139		%	4/18/05	4/18/05
CLP VOL	Surrogate Recovery (TOL)	96.0	75-125		%	4/18/05	4/18/05

Run #: 0417N16  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 50  
Initials: LF

Printed 4/20/05 5:10:02 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47143

Sample ID: 86-WCPT-543

APPL ID: AX17667

Sample Collection Date: 4/14/05

QCQ: SC42VT-050414BN-85744

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	1.8	0.5	0.14	ug/L	4/15/05	4/15/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/15/05	4/15/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	31	0.5	0.21	ug/L	4/15/05	4/15/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/15/05	4/15/05
CLP VOL	1,1-Dichloroethane	13	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	1,1-Dichloroethene	28	0.5	0.30	ug/L	4/15/05	4/15/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/15/05	4/15/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/15/05	4/15/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/15/05	4/15/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/15/05	4/15/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/15/05	4/15/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/15/05	4/15/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/15/05	4/15/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/15/05	4/15/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/15/05	4/15/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/15/05	4/15/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/15/05	4/15/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/15/05	4/15/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/15/05	4/15/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/15/05	4/15/05
CLP VOL	Chloroform	0.32 J	0.5	0.16	ug/L	4/15/05	4/15/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/15/05	4/15/05
CLP VOL	cis-1,2-Dichloroethene	240 E	0.5	0.16	ug/L	4/15/05	4/15/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/15/05	4/15/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/15/05	4/15/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/15/05	4/15/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/15/05	4/15/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

Run #: 0414N31  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed 4/20/05 11:44:01 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-543

Sample Collection Date: 4/14/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47143

APPL ID: AX17667

QCG: SC42VT-050414BN-85744

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	2.7	0.5	0.15	ug/L	4/15/05	4/15/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/15/05	4/15/05
CLP VOL	trans-1,2-Dichloroethene	2.9	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/15/05	4/15/05
CLP VOL	Trichloroethene	1100 E	0.5	0.16	ug/L	4/15/05	4/15/05
CLP VOL	Vinyl Chloride	Not detected	0.5	0.23	ug/L	4/15/05	4/15/05
CLP VOL	Surrogate Recovery (BFB)	101	75-125		%	4/15/05	4/15/05
CLP VOL	Surrogate Recovery (DCA)	115	62-139		%	4/15/05	4/15/05
CLP VOL	Surrogate Recovery (TOL)	93.2	75-125		%	4/15/05	4/15/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0414N31  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed 4/20/05 11:44 01 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-543**

Sample Collection Date: 4/14/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47143

**APPL ID: AX17667**

QCG: \$C42VD-050417AN-85826

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	180	25	8.00	ug/L	4/18/05	4/18/05
CLP VOL	Trichloroethene	1100	25	8.00	ug/L	4/18/05	4/18/05
CLP VOL	Surrogate Recovery (BFB)	107	75-125		%	4/18/05	4/18/05
CLP VOL	Surrogate Recovery (DCA)	123	62-139		%	4/18/05	4/18/05
CLP VOL	Surrogate Recovery (TOL)	106	75-125		%	4/18/05	4/18/05

Run #: 0417N17  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 50  
Initials: LF

Printed: 4/20/05 5:10 02 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 68 Moffett Airfield

Sample ID: 86-WOPT-544

Sample Collection Date: 4/14/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47143

APPL ID: AX17668

QCG: \$C42VT-050414BN-85744

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	1.8	0.5	0.14	ug/L	4/15/05	4/15/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/15/05	4/15/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	38	0.5	0.21	ug/L	4/15/05	4/15/05
CLP VOL	1,1,2-Trichloroethane	0.32 J	0.5	0.2	ug/L	4/15/05	4/15/05
CLP VOL	1,1-Dichloroethane	10	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	1,1-Dichloroethene	24	0.5	0.30	ug/L	4/15/05	4/15/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/15/05	4/15/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/15/05	4/15/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/15/05	4/15/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/15/05	4/15/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/15/05	4/15/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/15/05	4/15/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/15/05	4/15/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/15/05	4/15/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/15/05	4/15/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/15/05	4/15/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/15/05	4/15/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/15/05	4/15/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/15/05	4/15/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/15/05	4/15/05
CLP VOL	Chloroform	0.37 J	0.5	0.16	ug/L	4/15/05	4/15/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/15/05	4/15/05
CLP VOL	cis-1,2-Dichloroethene	160 E	0.5	0.16	ug/L	4/15/05	4/15/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/15/05	4/15/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/15/05	4/15/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/15/05	4/15/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/15/05	4/15/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0414N32  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11 44 01 AM  
APPL-F1-SC-MCRos/MCPOL-REG MDLs



# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-544

Sample Collection Date: 4/14/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47143

APPL ID: AX17668

QCG: SC42VT-050414BN-85744

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	11	0.5	0.15	ug/L	4/15/05	4/15/05
CLP VOL	Toluene	0.22 J	0.5	0.17	ug/L	4/15/05	4/15/05
CLP VOL	trans-1,2-Dichloroethene	3.3	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/15/05	4/15/05
CLP VOL	Trichloroethene	1400 E	0.5	0.16	ug/L	4/15/05	4/15/05
CLP VOL	Vinyl Chloride	0.44 J	0.5	0.23	ug/L	4/15/05	4/15/05
CLP VOL	Surrogate Recovery (BFB)	99.2	75-125		%	4/15/05	4/15/05
CLP VOL	Surrogate Recovery (DCA)	115	62-139		%	4/15/05	4/15/05
CLP VOL	Surrogate Recovery (TOL)	93.1	75-125		%	4/15/05	4/15/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0414N32  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:44:01 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-544

Sample Collection Date: 4/14/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47143

APPL ID: AX17668

QCG: SC42VD-050417AN-85826

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	110	25	8.00	ug/L	4/18/05	4/18/05
CLP VOL	Trichloroethene	1700	25	8.00	ug/L	4/18/05	4/18/05
CLP VOL	Surrogate Recovery (BFB)	111	75-125		%	4/18/05	4/18/05
CLP VOL	Surrogate Recovery (DCA)	118	62-139		%	4/18/05	4/18/05
CLP VOL	Surrogate Recovery (TOL)	107	75-125		%	4/18/05	4/18/05

Run #: 0417N18

Instrument: Neo

Sequence: N050412

Dilution Factor: 50

Initials: LF

Printed 4/20/05 5:10:02 PM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47143

Sample ID: 86-WOPT-545

APPL ID: AX17669

Sample Collection Date: 4/14/05

QCG: \$86TTS-050414BC-85740

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 20.9 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	1.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.6	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.61	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1-Dichloroethane	11	6	1.4	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1-Dichloroethene	24	6	1.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.91	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.78	ug/Kg	4/15/05	4/15/05
EPA 8260B	2-Butanone	Not detected	63	0.90	ug/Kg	4/15/05	4/15/05
EPA 8260B	2-Hexanone	Not detected	63	0.20	ug/Kg	4/15/05	4/15/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	63	1.2	ug/Kg	4/15/05	4/15/05
EPA 8260B	Acetone	Not detected	130	3.5	ug/Kg	4/15/05	4/15/05
EPA 8260B	Benzene	Not detected	6	0.80	ug/Kg	4/15/05	4/15/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.87	ug/Kg	4/15/05	4/15/05
EPA 8260B	Bromoform	Not detected	6	1.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	Bromomethane	Not detected	13	2.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	Carbon disulfide	Not detected	6	1.4	ug/Kg	4/15/05	4/15/05
EPA 8260B	Carbon tetrachloride	Not detected	6	1.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chlorobenzene	Not detected	6	0.62	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chloroethane	Not detected	6	2.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chloromethane	Not detected	6	2.3	ug/Kg	4/15/05	4/15/05
EPA 8260B	cis-1,2-Dichloroethene	890 E	6	1.4	ug/Kg	4/15/05	4/15/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.59	ug/Kg	4/15/05	4/15/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.1	ug/Kg	4/15/05	4/15/05
EPA 8260B	Ethylbenzene	Not detected	6	0.81	ug/Kg	4/15/05	4/15/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/15/05	4/15/05
EPA 8260B	Methylene chloride	Not detected	63	5.8	ug/Kg	4/15/05	4/15/05
EPA 8260B	Styrene	Not detected	6	0.87	ug/Kg	4/15/05	4/15/05
EPA 8260B	Tetrachloroethene	760 E	6	0.68	ug/Kg	4/15/05	4/15/05
EPA 8260B	Toluene	Not detected	6	0.82	ug/Kg	4/15/05	4/15/05
EPA 8260B	trans-1,2-Dichloroethene	5.6 J	6	1.7	ug/Kg	4/15/05	4/15/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

Run #: 0414C18  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed 4/20/05 11:44:01 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-545**

Sample Collection Date: 4/14/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47143

**APPL ID: AX17669**

QCG: \$86TTS-050414BC-85740

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.54	ug/Kg	4/15/05	4/15/05
EPA 8260B	Trichloroethene	700 E	6	0.90	ug/Kg	4/15/05	4/15/05
EPA 8260B	Vinyl Acetate	Not detected	63	1.3	ug/Kg	4/15/05	4/15/05
EPA 8260B	Vinyl chloride	Not detected	6	2.1	ug/Kg	4/15/05	4/15/05
EPA 8260B	Xylenes	Not detected	19	0.86	ug/Kg	4/15/05	4/15/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	112	52-149		%	4/15/05	4/15/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	94.8	65-135		%	4/15/05	4/15/05
EPA 8260B	Surrogate recovery: Toluene-d8	98.7	65-135		%	4/15/05	4/15/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

Run #: 0414C18  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed 4/20/05 11:44 01 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-545

Sample Collection Date: 4/14/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47143

APPL ID: AX17669

QCG: S86TTD-050417BM-86216

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 20.9 Percent Moisture.)							
EPA 8260B-	1,1,2,2-Tetrachloroethane	Not detected	28	17	ug/Kg	4/18/05	4/18/05
EPA 8260B-	4-Methyl-2-pentanone	Not detected	280	120	ug/Kg	4/18/05	4/18/05
EPA 8260B-	cis-1,2-Dichloroethene	1300	32	10	ug/Kg	4/18/05	4/18/05
EPA 8260B-	Tetrachloroethene	3500	32	9.5	ug/Kg	4/18/05	4/18/05
EPA 8260B-	Trichloroethene	1800	32	10	ug/Kg	4/18/05	4/18/05
EPA 8260B-	Surrogate recovery: 1,2-Dichloroethane	112	52-149		%	4/18/05	4/18/05
EPA 8260B-	Surrogate recovery: 4-Bromofluorobenz	94.1	65-135		%	4/18/05	4/18/05
EPA 8260B-	Surrogate recovery: Toluene-d8	97.1	65-135		%	4/18/05	4/18/05

Run #: 0417M35

Instrument: Max

Sequence: M050414

Dilution Factor: 50

Initials: LF

Printed 5/13/05 10:57:26 AM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47143

Sample ID: 86-WOPT-546

APPL ID: AX17670

Sample Collection Date: 4/14/05

QCQ: \$86TTS-050414BC-85740

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 21.4 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	1.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.6	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.61	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1-Dichloroethane	7.5	6	1.4	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1-Dichloroethene	18	6	1.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.92	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.79	ug/Kg	4/15/05	4/15/05
EPA 8260B	2-Butanone	Not detected	64	0.90	ug/Kg	4/15/05	4/15/05
EPA 8260B	2-Hexanone	Not detected	64	0.20	ug/Kg	4/15/05	4/15/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	64	1.2	ug/Kg	4/15/05	4/15/05
EPA 8260B	Acetone	Not detected	130	3.6	ug/Kg	4/15/05	4/15/05
EPA 8260B	Benzene	Not detected	6	0.80	ug/Kg	4/15/05	4/15/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.88	ug/Kg	4/15/05	4/15/05
EPA 8260B	Bromoform	Not detected	6	1.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	Bromomethane	Not detected	13	2.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	Carbon disulfide	Not detected	6	1.4	ug/Kg	4/15/05	4/15/05
EPA 8260B	Carbon tetrachloride	Not detected	6	1.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chlorobenzene	Not detected	6	0.62	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chloroethane	Not detected	6	2.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chloromethane	Not detected	6	2.3	ug/Kg	4/15/05	4/15/05
EPA 8260B	cis-1,2-Dichloroethene	1300 E	6	1.4	ug/Kg	4/15/05	4/15/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.60	ug/Kg	4/15/05	4/15/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.1	ug/Kg	4/15/05	4/15/05
EPA 8260B	Ethylbenzene	Not detected	6	0.81	ug/Kg	4/15/05	4/15/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/15/05	4/15/05
EPA 8260B	Methylene chloride	Not detected	64	5.8	ug/Kg	4/15/05	4/15/05
EPA 8260B	Styrene	Not detected	6	0.88	ug/Kg	4/15/05	4/15/05
EPA 8260B	Tetrachloroethene	58	6	0.69	ug/Kg	4/15/05	4/15/05
EPA 8260B	Toluene	Not detected	6	0.83	ug/Kg	4/15/05	4/15/05
EPA 8260B	trans-1,2-Dichloroethene	10	6	1.7	ug/Kg	4/15/05	4/15/05

E = The reported value exceeds linear range.

Run #: 0414C19  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:44:01 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47143

Sample ID: 86-WOPT-546

APPL ID: AX17670

Sample Collection Date: 4/14/05

QCG: S86TTS-050414BC-85740

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.55	ug/Kg	4/15/05	4/15/05
EPA 8260B	Trichloroethene	440	6	0.90	ug/Kg	4/15/05	4/15/05
EPA 8260B	Vinyl Acetate	Not detected	64	1.3	ug/Kg	4/15/05	4/15/05
EPA 8260B	Vinyl chloride	Not detected	6	2.1	ug/Kg	4/15/05	4/15/05
EPA 8260B	Xylenes	Not detected	19	0.87	ug/Kg	4/15/05	4/15/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	114	52-149		%	4/15/05	4/15/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	94.1	65-135		%	4/15/05	4/15/05
EPA 8260B	Surrogate recovery: Toluene-d8	105	65-135		%	4/15/05	4/15/05

E = The reported value exceeds linear range.

Run #: 0414C19  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed 4/20/05 11:44:01 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47143

**Sample ID: 86-WOPT-546**

**APPL ID: AX17670**

Sample Collection Date: 4/14/05

QCG: \$86TTD-050417BM-86216

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 21.4 Percent Moisture.)							
EPA 8260B-	1,1,2,2-Tetrachloroethane	Not detected	26.0	17	ug/Kg	4/18/05	4/18/05
EPA 8260B-	4-Methyl-2-pentanone	Not detected	260	120	ug/Kg	4/18/05	4/18/05
EPA 8260B-	cis-1,2-Dichloroethene	750	26.0	10	ug/Kg	4/18/05	4/18/05
EPA 8260B-	Trichloroethene	930	26.0	10	ug/Kg	4/18/05	4/18/05
EPA 8260B-	Surrogate recovery: 1,2-Dichloroethane	109	52-149		%	4/18/05	4/18/05
EPA 8260B-	Surrogate recovery: 4-Bromofluorobenz	91.9	65-135		%	4/18/05	4/18/05
EPA 8260B-	Surrogate recovery: Toluene-d8	95.7	65-135		%	4/18/05	4/18/05

Run #: 0417M36  
Instrument: Max  
Sequence: M050414  
Dilution Factor: 50  
Initials: LF

Printed 5/13/05 10:57:26 AM  
APPL-F1-SC-MCRes-MCPQL-REG MDLs



**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.066D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-547

Sample Collection Date: 4/14/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47143

APPL ID: AX17671

QCG: \$86TTS-050414BC-85740

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 14.5 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	0.95	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.4	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.56	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1-Dichloroethane	6.3	6	1.3	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1-Dichloroethane	11	6	0.92	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.84	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.73	ug/Kg	4/15/05	4/15/05
EPA 8260B	2-Butanone	Not detected	58	0.83	ug/Kg	4/15/05	4/15/05
EPA 8260B	2-Hexanone	Not detected	58	0.19	ug/Kg	4/15/05	4/15/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	58	1.1	ug/Kg	4/15/05	4/15/05
EPA 8260B	Acetone	Not detected	120	3.3	ug/Kg	4/15/05	4/15/05
EPA 8260B	Benzene	Not detected	6	0.74	ug/Kg	4/15/05	4/15/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.81	ug/Kg	4/15/05	4/15/05
EPA 8260B	Bromoform	Not detected	6	0.94	ug/Kg	4/15/05	4/15/05
EPA 8260B	Bromomethane	Not detected	12	1.9	ug/Kg	4/15/05	4/15/05
EPA 8260B	Carbon disulfide	1.3 J	6	1.3	ug/Kg	4/15/05	4/15/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.94	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chlorobenzene	Not detected	6	0.57	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chloroethane	Not detected	6	1.8	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chloroform	Not detected	6	1.7	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chloromethane	Not detected	6	2.1	ug/Kg	4/15/05	4/15/05
EPA 8260B	cis-1,2-Dichloroethane	700	6	1.2	ug/Kg	4/15/05	4/15/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.55	ug/Kg	4/15/05	4/15/05
EPA 8260B	Dibromochloromethane	Not detected	6	0.99	ug/Kg	4/15/05	4/15/05
EPA 8260B	Ethylbenzene	Not detected	6	0.75	ug/Kg	4/15/05	4/15/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	Methylene chloride	Not detected	58	5.4	ug/Kg	4/15/05	4/15/05
EPA 8260B	Styrene	Not detected	6	0.81	ug/Kg	4/15/05	4/15/05
EPA 8260B	Tetrachloroethane	1.9 J	6	0.63	ug/Kg	4/15/05	4/15/05
EPA 8260B	Toluene	Not detected	6	0.76	ug/Kg	4/15/05	4/15/05
EPA 8260B	trans-1,2-Dichloroethane	37	6	1.6	ug/Kg	4/15/05	4/15/05

J = Estimated value, below quantification limit.

Run #: 0414C20  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:44 01 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## EPA 8260B

Tetra Tech FW, Inc  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-547

Sample Collection Date: 4/14/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47143

APPL ID: AX17671

QCG: \$86TTS-050414BC-85740

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.50	ug/Kg	4/15/05	4/15/05
EPA 8260B	Trichloroethene	11	6	0.83	ug/Kg	4/15/05	4/15/05
EPA 8260B	Vinyl Acetate	Not detected	58	1.2	ug/Kg	4/15/05	4/15/05
EPA 8260B	Vinyl chloride	Not detected	6	2.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	Xylenes	Not detected	18	0.80	ug/Kg	4/15/05	4/15/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	111	52-149		%	4/15/05	4/15/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	102	65-135		%	4/15/05	4/15/05
EPA 8260B	Surrogate recovery: Toluene-d8	101	65-135		%	4/15/05	4/15/05

J = Estimated value, below quantitation limit.

Run #: 0414C20  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:44:01 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47143

Sample ID: 86-WOPT-548

APPL ID: AX17672

Sample Collection Date: 4/14/05

QCG: \$86TTS-050414BC-85740

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 22.2 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	1.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.6	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.62	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1-Dichloroethane	1.8 J	6	1.4	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1-Dichloroethene	1.4 J	6	1.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.93	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.80	ug/Kg	4/15/05	4/15/05
EPA 8260B	2-Butanone	Not detected	64	0.91	ug/Kg	4/15/05	4/15/05
EPA 8260B	2-Hexanone	Not detected	64	0.21	ug/Kg	4/15/05	4/15/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	64	1.2	ug/Kg	4/15/05	4/15/05
EPA 8260B	Acetone	Not detected	130	3.6	ug/Kg	4/15/05	4/15/05
EPA 8260B	Benzene	Not detected	6	0.81	ug/Kg	4/15/05	4/15/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.89	ug/Kg	4/15/05	4/15/05
EPA 8260B	Bromoform	Not detected	6	1.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	Bromomethane	Not detected	13	2.1	ug/Kg	4/15/05	4/15/05
EPA 8260B	Carbon disulfide	Not detected	6	1.4	ug/Kg	4/15/05	4/15/05
EPA 8260B	Carbon tetrachloride	Not detected	6	1.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chlorobenzene	Not detected	6	0.63	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chloroethane	Not detected	6	2.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chloromethane	Not detected	6	2.3	ug/Kg	4/15/05	4/15/05
EPA 8260B	cis-1,2-Dichloroethene	44	6	1.4	ug/Kg	4/15/05	4/15/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.60	ug/Kg	4/15/05	4/15/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.1	ug/Kg	4/15/05	4/15/05
EPA 8260B	Ethylbenzene	Not detected	6	0.82	ug/Kg	4/15/05	4/15/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/15/05	4/15/05
EPA 8260B	Methylene chloride	Not detected	64	5.9	ug/Kg	4/15/05	4/15/05
EPA 8260B	Styrene	Not detected	6	0.89	ug/Kg	4/15/05	4/15/05
EPA 8260B	Tetrachloroethene	0.78 J	6	0.69	ug/Kg	4/15/05	4/15/05
EPA 8260B	Toluene	Not detected	6	0.84	ug/Kg	4/15/05	4/15/05
EPA 8260B	trans-1,2-Dichloroethene	3.4 J	6	1.7	ug/Kg	4/15/05	4/15/05

J = Estimated value, below quantitation limit.

Run #: 0414C21  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:44 01 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-548

Sample Collection Date: 4/14/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47143

APPL ID: AX17672

QCG: \$86TTS-050414BC-85740

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.55	ug/Kg	4/15/05	4/15/05
EPA 8260B	Trichloroethene	25	6	0.91	ug/Kg	4/15/05	4/15/05
EPA 8260B	Vinyl Acetate	Not detected	64	1.3	ug/Kg	4/15/05	4/15/05
EPA 8260B	Vinyl chloride	Not detected	6	2.2	ug/Kg	4/15/05	4/15/05
EPA 8260B	Xylenes	Not detected	19	0.87	ug/Kg	4/15/05	4/15/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	108	52-149		%	4/15/05	4/15/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	108	65-135		%	4/15/05	4/15/05
EPA 8260B	Surrogate recovery: Toluene-d8	99.5	65-135		%	4/15/05	4/15/05

J = Estimated value, below quantitation limit.

Run #: 0414C21  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed 4/20/05 11:44 01 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

ARF: 47143

Sample ID: 86-WOPT-549

APPL ID: AX17673

Sample Collection Date: 4/14/05

CCG: \$86TTS-050414BC-85740

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 13.5 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	0.94	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.4	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.55	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1-Dichloroethane	1.6 J	6	1.3	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1-Dichloroethene	3.5 J	6	0.91	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.83	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.72	ug/Kg	4/15/05	4/15/05
EPA 8260B	2-Butanone	Not detected	58	0.82	ug/Kg	4/15/05	4/15/05
EPA 8260B	2-Hexanone	Not detected	58	0.18	ug/Kg	4/15/05	4/15/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	58	1.1	ug/Kg	4/15/05	4/15/05
EPA 8260B	Acetone	Not detected	120	3.2	ug/Kg	4/15/05	4/15/05
EPA 8260B	Benzene	Not detected	6	0.73	ug/Kg	4/15/05	4/15/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.80	ug/Kg	4/15/05	4/15/05
EPA 8260B	Bromoform	Not detected	6	0.92	ug/Kg	4/15/05	4/15/05
EPA 8260B	Bromomethane	Not detected	12	1.8	ug/Kg	4/15/05	4/15/05
EPA 8260B	Carbon disulfide	Not detected	6	1.2	ug/Kg	4/15/05	4/15/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.92	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chlorobenzene	Not detected	6	0.57	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chloroethane	Not detected	6	1.8	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chloroform	Not detected	6	1.6	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chloromethane	Not detected	6	2.1	ug/Kg	4/15/05	4/15/05
EPA 8260B	cis-1,2-Dichloroethene	35	6	1.2	ug/Kg	4/15/05	4/15/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.54	ug/Kg	4/15/05	4/15/05
EPA 8260B	Dibromochloromethane	Not detected	6	0.98	ug/Kg	4/15/05	4/15/05
EPA 8260B	Ethylbenzene	Not detected	6	0.74	ug/Kg	4/15/05	4/15/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	Methylene chloride	Not detected	58	5.3	ug/Kg	4/15/05	4/15/05
EPA 8260B	Styrene	Not detected	6	0.80	ug/Kg	4/15/05	4/15/05
EPA 8260B	Tetrachloroethene	2.7 J	6	0.62	ug/Kg	4/15/05	4/15/05
EPA 8260B	Toluene	Not detected	6	0.75	ug/Kg	4/15/05	4/15/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.6	ug/Kg	4/15/05	4/15/05

J = Estimated value, below quantitation limit.

Run #: 0414C22  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:44:01 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## EPA 8260B

Tetra Tech FW, Inc.  
1340 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47143

**Sample ID: 86-WOPT-549**

**APPL ID: AX17673**

Sample Collection Date: 4/14/05

QCG: S86TTS-050414BC-85740

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.50	ug/Kg	4/15/05	4/15/05
EPA 8260B	Trichloroethene	240	6	0.82	ug/Kg	4/15/05	4/15/05
EPA 8260B	Vinyl Acetate	Not detected	58	1.2	ug/Kg	4/15/05	4/15/05
EPA 8260B	Vinyl chloride	Not detected	6	1.9	ug/Kg	4/15/05	4/15/05
EPA 8260B	Xylenes	Not detected	17	0.79	ug/Kg	4/15/05	4/15/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	111	52-149		%	4/15/05	4/15/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	101	65-135		%	4/15/05	4/15/05
EPA 8260B	Surrogate recovery: Toluene-d8	97.4	65-135		%	4/15/05	4/15/05

J = Estimated value, below quantitation limit.

Run #: 0414C22  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed 4/20/05 11:44:01 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech F+W, Inc.  
1940 E. Deane Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 83 Moffett Airfield

ARF: 47143

Sample ID: 86-WOFT-550

APPL ID: AX17674

Sample Collection Date: 4/14/05

CCG: S86TTS-050414BC-85740

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 12.0 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	0.92	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.4	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.55	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1-Dichloroethane	Not detected	6	1.3	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1-Dichloroethene	3.0 J	6	0.90	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.82	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.70	ug/Kg	4/15/05	4/15/05
EPA 8260B	2-Butanone	Not detected	57	0.81	ug/Kg	4/15/05	4/15/05
EPA 8260B	2-Hexanone	Not detected	57	0.18	ug/Kg	4/15/05	4/15/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	57	1.1	ug/Kg	4/15/05	4/15/05
EPA 8260B	Acetone	Not detected	110	3.2	ug/Kg	4/15/05	4/15/05
EPA 8260B	Benzene	Not detected	6	0.72	ug/Kg	4/15/05	4/15/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.78	ug/Kg	4/15/05	4/15/05
EPA 8260B	Bromoform	Not detected	6	0.91	ug/Kg	4/15/05	4/15/05
EPA 8260B	Bromomethane	Not detected	11	1.8	ug/Kg	4/15/05	4/15/05
EPA 8260B	Carbon disulfide	Not detected	6	1.2	ug/Kg	4/15/05	4/15/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.91	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chlorobenzene	Not detected	6	0.56	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chloroethane	Not detected	6	1.8	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chloroform	Not detected	6	1.6	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chloromethane	Not detected	6	2.1	ug/Kg	4/15/05	4/15/05
EPA 8260B	cis-1,2-Dichloroethene	14	6	1.2	ug/Kg	4/15/05	4/15/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.53	ug/Kg	4/15/05	4/15/05
EPA 8260B	Dibromochloromethane	Not detected	6	0.97	ug/Kg	4/15/05	4/15/05
EPA 8260B	Ethylbenzene	Not detected	6	0.73	ug/Kg	4/15/05	4/15/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	Methylene chloride	Not detected	57	5.2	ug/Kg	4/15/05	4/15/05
EPA 8260B	Styrene	Not detected	6	0.78	ug/Kg	4/15/05	4/15/05
EPA 8260B	Tetrachloroethene	2.5 J	6	0.61	ug/Kg	4/15/05	4/15/05
EPA 8260B	Toluene	Not detected	6	0.74	ug/Kg	4/15/05	4/15/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.5	ug/Kg	4/15/05	4/15/05

J = Estimated value, below quantitation limit.

Run #: 0414C23  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11 44 01 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-550**

Sample Collection Date: 4/14/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47143

**APPL ID: AX17674**

QCG: S86TTS-050414BC-85740

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.49	ug/Kg	4/15/05	4/15/05
EPA 8260B	Trichloroethene	310	6	0.81	ug/Kg	4/15/05	4/15/05
EPA 8260B	Vinyl Acetate	Not detected	57	1.1	ug/Kg	4/15/05	4/15/05
EPA 8260B	Vinyl chloride	Not detected	6	1.9	ug/Kg	4/15/05	4/15/05
EPA 8260B	Xylenes	Not detected	17	0.77	ug/Kg	4/15/05	4/15/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	117	52-149		%	4/15/05	4/15/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	105	65-135		%	4/15/05	4/15/05
EPA 8260B	Surrogate recovery: Toluene-d8	95.4	65-135		%	4/15/05	4/15/05

J = Estimated value, below quantitation limit.

Run #: 0414C23  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:44 01 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLS



# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1033

Sample Collection Date: 4/14/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47143

APPL ID: AX17675

CCG: S86TTW-050414BM-8574

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/15/05	4/15/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/15/05	4/15/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/15/05	4/15/05
EPA 8260B	1,1-Dichloroethane	Not detected	0.5	0.19	ug/L	4/15/05	4/15/05
EPA 8260B	1,1-Dichloroethene	Not detected	0.5	0.30	ug/L	4/15/05	4/15/05
EPA 8260B	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/15/05	4/15/05
EPA 8260B	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/15/05	4/15/05
EPA 8260B	2-Butanone	Not detected	5	0.6	ug/L	4/15/05	4/15/05
EPA 8260B	2-Hexanone	Not detected	5	0.92	ug/L	4/15/05	4/15/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/15/05	4/15/05
EPA 8260B	Acetone	7.7	5	0.95	ug/L	4/15/05	4/15/05
EPA 8260B	Benzene	Not detected	0.5	0.16	ug/L	4/15/05	4/15/05
EPA 8260B	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/15/05	4/15/05
EPA 8260B	Bromoform	Not detected	0.5	0.14	ug/L	4/15/05	4/15/05
EPA 8260B	Bromomethane	Not detected	1	0.24	ug/L	4/15/05	4/15/05
EPA 8260B	Carbon disulfide	Not detected	0.5	0.2	ug/L	4/15/05	4/15/05
EPA 8260B	Carbon tetrachloride	Not detected	0.5	0.10	ug/L	4/15/05	4/15/05
EPA 8260B	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/15/05	4/15/05
EPA 8260B	Chloroethane	Not detected	0.5	0.21	ug/L	4/15/05	4/15/05
EPA 8260B	Chloroform	Not detected	0.5	0.16	ug/L	4/15/05	4/15/05
EPA 8260B	Chloromethane	Not detected	0.5	0.31	ug/L	4/15/05	4/15/05
EPA 8260B	cis-1,2-Dichloroethene	Not detected	0.5	0.16	ug/L	4/15/05	4/15/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/15/05	4/15/05
EPA 8260B	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/15/05	4/15/05
EPA 8260B	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/15/05	4/15/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/15/05	4/15/05
EPA 8260B	Methylene chloride	0.59 J	5	0.35	ug/L	4/15/05	4/15/05
EPA 8260B	Styrene	Not detected	0.5	0.25	ug/L	4/15/05	4/15/05
EPA 8260B	Tetrachloroethene	Not detected	0.5	0.15	ug/L	4/15/05	4/15/05
EPA 8260B	Toluene	Not detected	0.5	0.17	ug/L	4/15/05	4/15/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	0.5	0.19	ug/L	4/15/05	4/15/05

J = Estimated value, below quantitation limit.

Run #: 0414M34  
Instrument: Max  
Sequence: M050414  
Dilution Factor: 1  
Initials: LF

Printed 4/20/05 11:44:01 AM  
APPL-F1-SC-MCRes\MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47143

**Sample ID: 86-WOPT-1033**

**APPL ID: AX17675**

Sample Collection Date: 4/14/05

QCG: \$86TTW-050414BM-8574

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/15/05	4/15/05
EPA 8260B	Trichloroethene	Not detected	0.5	0.16	ug/L	4/15/05	4/15/05
EPA 8260B	Vinyl Acetate	Not detected	5	0.31	ug/L	4/15/05	4/15/05
EPA 8260B	Vinyl chloride	Not detected	0.5	0.23	ug/L	4/15/05	4/15/05
EPA 8260B	Xylenes	Not detected	1.5	0.19	ug/L	4/15/05	4/15/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	114	62-139		%	4/15/05	4/15/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	94.3	75-125		%	4/15/05	4/15/05
EPA 8260B	Surrogate recovery: Toluene-d8	96.0	75-125		%	4/15/05	4/15/05

J = Estimated value, below quantitation limit

Run #: 0414M34  
Instrument: Max  
Sequence: M050414  
Dilution Factor: 1  
Initials: LF

Printed 4/20/05 11:44:01 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1540 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47143

Sample ID: 86-WOPT-1034

APPL ID: AX17676

Sample Collection Date: 4/14/05

CCG: \$86TTS-050414BC-85740

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 20.1 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	1.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.6	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.60	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1-Dichloroethane	15	6	1.4	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1-Dichloroethene	15	6	0.99	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.90	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.78	ug/Kg	4/15/05	4/15/05
EPA 8260B	2-Butanone	Not detected	63	0.89	ug/Kg	4/15/05	4/15/05
EPA 8260B	2-Hexanone	Not detected	63	0.20	ug/Kg	4/15/05	4/15/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	63	1.2	ug/Kg	4/15/05	4/15/05
EPA 8260B	Acetone	Not detected	130	3.5	ug/Kg	4/15/05	4/15/05
EPA 8260B	Benzene	Not detected	6	0.79	ug/Kg	4/15/05	4/15/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.86	ug/Kg	4/15/05	4/15/05
EPA 8260B	Bromoform	Not detected	6	1.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	Bromomethane	Not detected	13	2.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	Carbon disulfide	Not detected	6	1.4	ug/Kg	4/15/05	4/15/05
EPA 8260B	Carbon tetrachloride	Not detected	6	1.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chlorobenzene	Not detected	6	0.61	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chloroethane	Not detected	6	1.9	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chloromethane	Not detected	6	2.3	ug/Kg	4/15/05	4/15/05
EPA 8260B	cis-1,2-Dichloroethene	220	6	1.3	ug/Kg	4/15/05	4/15/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.59	ug/Kg	4/15/05	4/15/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.1	ug/Kg	4/15/05	4/15/05
EPA 8260B	Ethylbenzene	Not detected	6	0.80	ug/Kg	4/15/05	4/15/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/15/05	4/15/05
EPA 8260B	Methylene chloride	Not detected	63	5.7	ug/Kg	4/15/05	4/15/05
EPA 8260B	Styrene	Not detected	6	0.86	ug/Kg	4/15/05	4/15/05
EPA 8260B	Tetrachloroethene	Not detected	6	0.68	ug/Kg	4/15/05	4/15/05
EPA 8260B	Toluene	Not detected	6	0.81	ug/Kg	4/15/05	4/15/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.7	ug/Kg	4/15/05	4/15/05

J = Estimated value, below quantitation limit.

Run #: 0414C24  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:44:01 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## EPA 8260B

Tetra Tech F/W, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1034

Sample Collection Date: 4/14/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47143

APPL ID: AX17676

QCG: S86TTS-050414BC-85740

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.54	ug/Kg	4/15/05	4/15/05
EPA 3260B	Trichloroethene	1.7 J	6	0.89	ug/Kg	4/15/05	4/15/05
EPA 8260B	Vinyl Acetate	Not detected	63	1.3	ug/Kg	4/15/05	4/15/05
EPA 8260B	Vinyl chloride	Not detected	6	2.1	ug/Kg	4/15/05	4/15/05
EPA 8260B	Xylenes	Not detected	19	0.85	ug/Kg	4/15/05	4/15/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	124	52-149		%	4/15/05	4/15/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	103	65-135		%	4/15/05	4/15/05
EPA 8260B	Surrogate recovery: Toluene-d8	95.7	65-135		%	4/15/05	4/15/05

J = Estimated value, below quantitation limit.

Run #: 0414C24  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:44:01 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47143

Sample ID: 86-WOPT-1035

APPL ID: AX17677

Sample Collection Date: 4/14/05

QCG: \$86TTS-050414BC-85740

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 23.1 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	7	1.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	7	1.6	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	7	0.62	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1-Dichloroethane	Not detected	7	1.5	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1-Dichloroethene	5.0 J	7	1.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,2-Dichloroethane	Not detected	7	0.94	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,2-Dichloropropane	Not detected	7	0.81	ug/Kg	4/15/05	4/15/05
EPA 8260B	2-Butanone	Not detected	65	0.92	ug/Kg	4/15/05	4/15/05
EPA 8260B	2-Hexanone	Not detected	65	0.21	ug/Kg	4/15/05	4/15/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	65	1.2	ug/Kg	4/15/05	4/15/05
EPA 8260B	Acetone	Not detected	130	3.6	ug/Kg	4/15/05	4/15/05
EPA 8260B	Benzene	Not detected	7	0.82	ug/Kg	4/15/05	4/15/05
EPA 8260B	Bromodichloromethane	Not detected	7	0.90	ug/Kg	4/15/05	4/15/05
EPA 8260B	Bromoform	Not detected	7	1.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	Bromomethane	Not detected	13	2.1	ug/Kg	4/15/05	4/15/05
EPA 8260B	Carbon disulfide	Not detected	7	1.4	ug/Kg	4/15/05	4/15/05
EPA 8260B	Carbon tetrachloride	Not detected	7	1.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chlorobenzene	Not detected	7	0.64	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chloroethane	Not detected	7	2.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chloroform	Not detected	7	1.9	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chloromethane	Not detected	7	2.4	ug/Kg	4/15/05	4/15/05
EPA 8260B	cis-1,2-Dichloroethene	310	7	1.4	ug/Kg	4/15/05	4/15/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	7	0.61	ug/Kg	4/15/05	4/15/05
EPA 8260B	Dibromochloromethane	Not detected	7	1.1	ug/Kg	4/15/05	4/15/05
EPA 8260B	Ethylbenzene	Not detected	7	0.83	ug/Kg	4/15/05	4/15/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	7	1.2	ug/Kg	4/15/05	4/15/05
EPA 8260B	Methylene chloride	Not detected	65	6.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	Styrene	Not detected	7	0.90	ug/Kg	4/15/05	4/15/05
EPA 8260B	Tetrachloroethene	Not detected	7	0.70	ug/Kg	4/15/05	4/15/05
EPA 8260B	Toluene	Not detected	7	0.85	ug/Kg	4/15/05	4/15/05
EPA 8260B	trans-1,2-Dichloroethene	3.9 J	7	1.8	ug/Kg	4/15/05	4/15/05

J = Estimated value, below quantitation limit.

Run #: 0414C25  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:44:01 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47143

Sample ID: 86-WOPT-1035

APPL ID: AX17677

Sample Collection Date: 4/14/05

QCG: \$86TTS-050414BC-85740

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	7	0.56	ug/Kg	4/15/05	4/15/05
EPA 8260B	Trichloroethene	75	7	0.92	ug/Kg	4/15/05	4/15/05
EPA 8260B	Vinyl Acetate	Not detected	65	1.3	ug/Kg	4/15/05	4/15/05
EPA 8260B	Vinyl chloride	Not detected	7	2.2	ug/Kg	4/15/05	4/15/05
EPA 8260B	Xylenes	Not detected	20	0.88	ug/Kg	4/15/05	4/15/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	112	52-149		%	4/15/05	4/15/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	99.3	65-135		%	4/15/05	4/15/05
EPA 8260B	Surrogate recovery: Toluene-d8	95.7	65-135		%	4/15/05	4/15/05

J = Estimated value, below quantitation limit.

Run #: 0414C25  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:44 01 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47143

Sample ID: 86-WOPT-1036

APPL ID: AX17678

Sample Collection Date: 4/14/05

QCG: S86TTS-050414BC-85740

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 18.7 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	1.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.5	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.59	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1-Dichloroethane	5.5 J	6	1.4	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1-Dichloroethene	8.2	6	0.97	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.89	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.76	ug/Kg	4/15/05	4/15/05
EPA 8260B	2-Butanone	Not detected	62	0.87	ug/Kg	4/15/05	4/15/05
EPA 8260B	2-Hexanone	Not detected	62	0.20	ug/Kg	4/15/05	4/15/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	62	1.1	ug/Kg	4/15/05	4/15/05
EPA 8260B	Acetone	Not detected	120	3.4	ug/Kg	4/15/05	4/15/05
EPA 8260B	Benzene	Not detected	6	0.77	ug/Kg	4/15/05	4/15/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.85	ug/Kg	4/15/05	4/15/05
EPA 8260B	Bromoform	Not detected	6	0.98	ug/Kg	4/15/05	4/15/05
EPA 8260B	Bromomethane	Not detected	12	2.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	Carbon disulfide	Not detected	6	1.3	ug/Kg	4/15/05	4/15/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.98	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chlorobenzene	Not detected	6	0.60	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chloroethane	Not detected	6	1.9	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chloromethane	Not detected	6	2.2	ug/Kg	4/15/05	4/15/05
EPA 8260B	cis-1,2-Dichloroethene	490	6	1.3	ug/Kg	4/15/05	4/15/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.58	ug/Kg	4/15/05	4/15/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	Ethylbenzene	Not detected	6	0.79	ug/Kg	4/15/05	4/15/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/15/05	4/15/05
EPA 8260B	Methylene chloride	Not detected	62	5.6	ug/Kg	4/15/05	4/15/05
EPA 8260B	Styrene	Not detected	6	0.85	ug/Kg	4/15/05	4/15/05
EPA 8260B	Tetrachloroethene	Not detected	6	0.66	ug/Kg	4/15/05	4/15/05
EPA 8260B	Toluene	Not detected	6	0.80	ug/Kg	4/15/05	4/15/05
EPA 8260B	trans-1,2-Dichloroethene	4.5 J	6	1.7	ug/Kg	4/15/05	4/15/05

J = Estimated value, below quantitation limit.

Run #: 0414C26  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed 4/20/05 11:44:01 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1036

Sample Collection Date: 4/14/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47143

APPL ID: AX17678

QCG: S86TTS-050414BC-85740

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.53	ug/Kg	4/15/05	4/15/05
EPA 8260B	Trichloroethene	6.0	6	0.87	ug/Kg	4/15/05	4/15/05
EPA 8260B	Vinyl Acetate	Not detected	62	1.2	ug/Kg	4/15/05	4/15/05
EPA 8260B	Vinyl chloride	Not detected	6	2.1	ug/Kg	4/15/05	4/15/05
EPA 8260B	Xylenes	Not detected	18	0.84	ug/Kg	4/15/05	4/15/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	111	52-149		%	4/15/05	4/15/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	97.9	65-135		%	4/15/05	4/15/05
EPA 8260B	Surrogate recovery: Toluene-d8	101	65-135		%	4/15/05	4/15/05

J = Estimated value, below quantitation limit.

Run #: 0414C26  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:44:01 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47143

Sample ID: 86-WOPT-1037

APPL ID: AX17679

Sample Collection Date: 4/14/05

QCG: S86TTS-050415AC-85747

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 16.3 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	0.99	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.5	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.59	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1-Dichloroethane	2.5 J	6	1.4	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1-Dichloroethene	4.0 J	6	0.97	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.88	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.76	ug/Kg	4/15/05	4/15/05
EPA 8260B	2-Butanone	Not detected	61	0.87	ug/Kg	4/15/05	4/15/05
EPA 8260B	2-Hexanone	Not detected	61	0.20	ug/Kg	4/15/05	4/15/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	61	1.1	ug/Kg	4/15/05	4/15/05
EPA 8260B	Acetone	Not detected	120	3.4	ug/Kg	4/15/05	4/15/05
EPA 8260B	Benzene	Not detected	6	0.77	ug/Kg	4/15/05	4/15/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.84	ug/Kg	4/15/05	4/15/05
EPA 8260B	Bromoform	Not detected	6	0.98	ug/Kg	4/15/05	4/15/05
EPA 8260B	Bromomethane	Not detected	12	2.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	Carbon disulfide	Not detected	6	1.3	ug/Kg	4/15/05	4/15/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.98	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chlorobenzene	Not detected	6	0.60	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chloroethane	Not detected	6	1.9	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chloromethane	Not detected	6	2.2	ug/Kg	4/15/05	4/15/05
EPA 8260B	cis-1,2-Dichloroethene	51	6	1.3	ug/Kg	4/15/05	4/15/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.58	ug/Kg	4/15/05	4/15/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	Ethylbenzene	Not detected	6	0.78	ug/Kg	4/15/05	4/15/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/15/05	4/15/05
EPA 8260B	Methylene chloride	Not detected	61	5.6	ug/Kg	4/15/05	4/15/05
EPA 8260B	Styrene	Not detected	6	0.84	ug/Kg	4/15/05	4/15/05
EPA 8260B	Tetrachloroethene	Not detected	6	0.66	ug/Kg	4/15/05	4/15/05
EPA 8260B	Toluene	Not detected	6	0.80	ug/Kg	4/15/05	4/15/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.6	ug/Kg	4/15/05	4/15/05

J = Estimated value, below quantitation limit.

Run #: 0415C06  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed 4/20/05 11:44:01 AM  
APPL-F1-SC-MCRes/MCQPL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47143

Sample ID: 86-WOPT-1037

APPL ID: AX17679

Sample Collection Date: 4/14/05

QCG: S86TTS-050415AC-85747

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.53	ug/Kg	4/15/05	4/15/05
EPA 8260B	Trichloroethene	240	6	0.87	ug/Kg	4/15/05	4/15/05
EPA 8260B	Vinyl Acetate	Not detected	61	1.2	ug/Kg	4/15/05	4/15/05
EPA 8260B	Vinyl chloride	Not detected	6	2.1	ug/Kg	4/15/05	4/15/05
EPA 8260B	Xylenes	Not detected	18	0.83	ug/Kg	4/15/05	4/15/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	106	52-149		%	4/15/05	4/15/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	94.5	65-135		%	4/15/05	4/15/05
EPA 8260B	Surrogate recovery: Toluene-d8	93.0	65-135		%	4/15/05	4/15/05

J = Estimated value, below quantitation limit.

Run #: 0415C06  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:44:01 AM  
APPL-F1-SC-MCRes/MCPOL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47143

Sample ID: 86-WOPT-1038

APPL ID: AX17680

Sample Collection Date: 4/14/05

QCG: S86TTS-050415AC-85747

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 12.3 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	0.92	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.4	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.55	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1-Dichloroethane	Not detected	6	1.3	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1-Dichloroethene	Not detected	6	0.90	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.82	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.71	ug/Kg	4/15/05	4/15/05
EPA 8260B	2-Butanone	Not detected	57	0.81	ug/Kg	4/15/05	4/15/05
EPA 8260B	2-Hexanone	Not detected	57	0.18	ug/Kg	4/15/05	4/15/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	57	1.1	ug/Kg	4/15/05	4/15/05
EPA 8260B	Acetone	Not detected	110	3.2	ug/Kg	4/15/05	4/15/05
EPA 8260B	Benzene	Not detected	6	0.72	ug/Kg	4/15/05	4/15/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.79	ug/Kg	4/15/05	4/15/05
EPA 8260B	Bromoform	Not detected	6	0.91	ug/Kg	4/15/05	4/15/05
EPA 8260B	Bromomethane	Not detected	11	1.8	ug/Kg	4/15/05	4/15/05
EPA 8260B	Carbon disulfide	Not detected	6	1.2	ug/Kg	4/15/05	4/15/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.91	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chlorobenzene	Not detected	6	0.56	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chloroethane	Not detected	6	1.8	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chloroform	Not detected	6	1.6	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chloromethane	Not detected	6	2.1	ug/Kg	4/15/05	4/15/05
EPA 8260B	cis-1,2-Dichloroethene	6.6	6	1.2	ug/Kg	4/15/05	4/15/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.54	ug/Kg	4/15/05	4/15/05
EPA 8260B	Dibromochloromethane	Not detected	6	0.97	ug/Kg	4/15/05	4/15/05
EPA 8260B	Ethylbenzene	Not detected	6	0.73	ug/Kg	4/15/05	4/15/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	Methylene chloride	51 J	57	5.2	ug/Kg	4/15/05	4/15/05
EPA 8260B	Styrene	Not detected	6	0.79	ug/Kg	4/15/05	4/15/05
EPA 8260B	Tetrachloroethene	Not detected	6	0.82	ug/Kg	4/15/05	4/15/05
EPA 8260B	Toluene	Not detected	6	0.74	ug/Kg	4/15/05	4/15/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.5	ug/Kg	4/15/05	4/15/05

J = Estimated value, below quantitation limit.

Run #: 0415C07  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:44:01 AM  
APPL-F1-SC-MCRes/MCQPL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Desre Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1038

Sample Collection Date: 4/14/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47143

APPL ID: AX17680

QCG: \$86TTS-050415AC-85747

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.49	ug/Kg	4/15/05	4/15/05
EPA 8260B	Trichloroethene	72	6	0.81	ug/Kg	4/15/05	4/15/05
EPA 8260B	Vinyl Acetate	Not detected	57	1.1	ug/Kg	4/15/05	4/15/05
EPA 8260B	Vinyl chloride	Not detected	6	1.9	ug/Kg	4/15/05	4/15/05
EPA 8260B	Xylenes	Not detected	17	0.78	ug/Kg	4/15/05	4/15/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	118	52-149		%	4/15/05	4/15/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	101	65-135		%	4/15/05	4/15/05
EPA 8260B	Surrogate recovery: Toluene-d8	95.7	65-135		%	4/15/05	4/15/05

J = Estimated value, below quantitation limit.

Run #: 0415C07  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:44 01 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 86 Moffett Airfield

Sample ID: 86-WOPT-1039

Sample Collection Date: 4/14/05

APPL Inc  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47143

APPL ID: AX17681

QCG: S86TTS-050415AC-85747

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 20.7 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	1.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.6	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.61	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1-Dichloroethane	Not detected	6	1.4	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1-Dichloroethene	4.9 J	6	1.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.91	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.78	ug/Kg	4/15/05	4/15/05
EPA 8260B	2-Butanone	Not detected	63	0.90	ug/Kg	4/15/05	4/15/05
EPA 8260B	2-Hexanone	Not detected	63	0.20	ug/Kg	4/15/05	4/15/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	63	1.2	ug/Kg	4/15/05	4/15/05
EPA 8260B	Acetone	Not detected	130	3.5	ug/Kg	4/15/05	4/15/05
EPA 8260B	Benzene	Not detected	6	0.79	ug/Kg	4/15/05	4/15/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.87	ug/Kg	4/15/05	4/15/05
EPA 8260B	Bromoform	Not detected	6	1.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	Bromomethane	Not detected	13	2.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	Carbon disulfide	Not detected	6	1.4	ug/Kg	4/15/05	4/15/05
EPA 8260B	Carbon tetrachloride	Not detected	6	1.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chlorobenzene	Not detected	6	0.62	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chloroethane	Not detected	6	2.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chloromethane	Not detected	6	2.3	ug/Kg	4/15/05	4/15/05
EPA 8260B	cis-1,2-Dichloroethene	13	6	1.4	ug/Kg	4/15/05	4/15/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.59	ug/Kg	4/15/05	4/15/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.1	ug/Kg	4/15/05	4/15/05
EPA 8260B	Ethylbenzene	Not detected	6	0.81	ug/Kg	4/15/05	4/15/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/15/05	4/15/05
EPA 8260B	Methylene chloride	51 J	63	5.8	ug/Kg	4/15/05	4/15/05
EPA 8260B	Styrene	Not detected	6	0.87	ug/Kg	4/15/05	4/15/05
EPA 8260B	Tetrachloroethene	Not detected	6	0.68	ug/Kg	4/15/05	4/15/05
EPA 8260B	Toluene	Not detected	6	0.82	ug/Kg	4/15/05	4/15/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.7	ug/Kg	4/15/05	4/15/05

J = Estimated value, below quantitation limit.

Run #: 0415C08  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:44:01 AM  
APPL-F1-SC-MCRs/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-1039**

Sample Collection Date: 4/14/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47143

**APPL ID: AX17681**

QCQ: S86TTS-050415AC-85747

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.54	ug/Kg	4/15/05	4/15/05
EPA 8260B	Trichloroethene	280	6	0.90	ug/Kg	4/15/05	4/15/05
EPA 8260B	Vinyl Acetate	Not detected	63	1.3	ug/Kg	4/15/05	4/15/05
EPA 8260B	Vinyl chloride	Not detected	6	2.1	ug/Kg	4/15/05	4/15/05
EPA 8260B	Xylenes	Not detected	19	0.86	ug/Kg	4/15/05	4/15/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	117	52-149		%	4/15/05	4/15/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	98.8	65-135		%	4/15/05	4/15/05
EPA 8260B	Surrogate recovery: Toluene-d8	95.1	65-135		%	4/15/05	4/15/05

J = Estimated value, below quantitation limit.

Run #: 0415C08  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed 4/20/05 11:44:02 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1040

Sample Collection Date: 4/14/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47143

APPL ID: AX17682

QCG: \$86TTW-050414BM-8574

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/15/05	4/15/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/15/05	4/15/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/15/05	4/15/05
EPA 8260B	1,1-Dichloroethane	Not detected	0.5	0.19	ug/L	4/15/05	4/15/05
EPA 8260B	1,1-Dichloroethene	Not detected	0.5	0.30	ug/L	4/15/05	4/15/05
EPA 8260B	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/15/05	4/15/05
EPA 8260B	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/15/05	4/15/05
EPA 8260B	2-Butanone	Not detected	5	0.6	ug/L	4/15/05	4/15/05
EPA 8260B	2-Hexanone	Not detected	5	0.92	ug/L	4/15/05	4/15/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/15/05	4/15/05
EPA 8260B	Acetone	Not detected	5	0.95	ug/L	4/15/05	4/15/05
EPA 8260B	Benzene	Not detected	0.5	0.16	ug/L	4/15/05	4/15/05
EPA 8260B	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/15/05	4/15/05
EPA 8260B	Bromoform	Not detected	0.5	0.14	ug/L	4/15/05	4/15/05
EPA 8260B	Bromomethane	Not detected	1	0.24	ug/L	4/15/05	4/15/05
EPA 8260B	Carbon disulfide	Not detected	0.5	0.2	ug/L	4/15/05	4/15/05
EPA 8260B	Carbon tetrachloride	Not detected	0.5	0.10	ug/L	4/15/05	4/15/05
EPA 8260B	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/15/05	4/15/05
EPA 8260B	Chloroethane	Not detected	0.5	0.21	ug/L	4/15/05	4/15/05
EPA 8260B	Chloroform	Not detected	0.5	0.16	ug/L	4/15/05	4/15/05
EPA 8260B	Chloromethane	Not detected	0.5	0.31	ug/L	4/15/05	4/15/05
EPA 8260B	cis-1,2-Dichloroethene	Not detected	0.5	0.16	ug/L	4/15/05	4/15/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/15/05	4/15/05
EPA 8260B	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/15/05	4/15/05
EPA 8260B	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/15/05	4/15/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/15/05	4/15/05
EPA 8260B	Methylene chloride	Not detected	5	0.35	ug/L	4/15/05	4/15/05
EPA 8260B	Styrene	Not detected	0.5	0.25	ug/L	4/15/05	4/15/05
EPA 8260B	Tetrachloroethene	Not detected	0.5	0.15	ug/L	4/15/05	4/15/05
EPA 8260B	Toluene	Not detected	0.5	0.17	ug/L	4/15/05	4/15/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	0.5	0.19	ug/L	4/15/05	4/15/05

Run #: 0414M35

Instrument: Max

Sequence: M050414

Dilution Factor: 1

Initials: LF

Printed 4/20/05 11:44:02 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-1040**

Sample Collection Date: 4/14/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47143

**APPL ID: AX17682**

QC: \$86TTW-050414BM-8574

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/15/05	4/15/05
EPA 8260B	Trichloroethene	Not detected	0.5	0.16	ug/L	4/15/05	4/15/05
EPA 8260B	Vinyl Acetate	Not detected	5	0.31	ug/L	4/15/05	4/15/05
EPA 8260B	Vinyl chloride	Not detected	0.5	0.23	ug/L	4/15/05	4/15/05
EPA 8260B	Xylenes	Not detected	1.5	0.19	ug/L	4/15/05	4/15/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	109	62-139		%	4/15/05	4/15/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	91.8	75-125		%	4/15/05	4/15/05
EPA 8260B	Surrogate recovery: Toluene-d8	95.6	75-125		%	4/15/05	4/15/05

Run #: 0414M35  
Instrument: Max  
Sequence: M050414  
Dilution Factor: 1  
Initials: LF

Printed 4/20/05 11:44:02 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

ARF: 47143

Sample ID: 86-WOPT-1041

APPL ID: AX17683

Sample Collection Date: 4/14/05

QCG: SC42VT-050414BN-85744

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	1.6	0.5	0.14	ug/L	4/15/05	4/15/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/15/05	4/15/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	4.8	0.5	0.21	ug/L	4/15/05	4/15/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/15/05	4/15/05
CLP VOL	1,1-Dichloroethane	14	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	1,1-Dichloroethene	17	0.5	0.30	ug/L	4/15/05	4/15/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/15/05	4/15/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/15/05	4/15/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/15/05	4/15/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/15/05	4/15/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/15/05	4/15/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/15/05	4/15/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/15/05	4/15/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/15/05	4/15/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/15/05	4/15/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/15/05	4/15/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/15/05	4/15/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/15/05	4/15/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/15/05	4/15/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/15/05	4/15/05
CLP VOL	Chloroform	1.2	0.5	0.16	ug/L	4/15/05	4/15/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/15/05	4/15/05
CLP VOL	cis-1,2-Dichloroethene	340 E	0.5	0.16	ug/L	4/15/05	4/15/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/15/05	4/15/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/15/05	4/15/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/15/05	4/15/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/15/05	4/15/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0414N33  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:44:02 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1041

Sample Collection Date: 4/14/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47143

APPL ID: AX17683

QCG: SC42VT-050414BN-85744

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	4.9	0.5	0.15	ug/L	4/15/05	4/15/05
CLP VOL	Toluene	0.26 J	0.5	0.17	ug/L	4/15/05	4/15/05
CLP VOL	trans-1,2-Dichloroethene	1.8	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/15/05	4/15/05
CLP VOL	Trichloroethene	860 E	0.5	0.16	ug/L	4/15/05	4/15/05
CLP VOL	Vinyl Chloride	0.36 J	0.5	0.23	ug/L	4/15/05	4/15/05
CLP VOL	Surrogate Recovery (BFB)	101	75-125		%	4/15/05	4/15/05
CLP VOL	Surrogate Recovery (DCA)	113	62-139		%	4/15/05	4/15/05
CLP VOL	Surrogate Recovery (TOL)	100	75-125		%	4/15/05	4/15/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0414N33  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:44:02 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-1041**

Sample Collection Date: 4/14/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47143

**APPL ID: AX17683**

QC# SC42VD-050417BN-85884

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	250	10	3.20	ug/L	4/18/05	4/18/05
CLP VOL	Trichloroethene	710	10	3.20	ug/L	4/18/05	4/18/05
CLP VOL	Surrogate Recovery (BFB)	103	75-125		%	4/18/05	4/18/05
CLP VOL	Surrogate Recovery (DCA)	96.7	62-139		%	4/18/05	4/18/05
CLP VOL	Surrogate Recovery (TOL)	112	75-125		%	4/18/05	4/18/05

Run #: 0417N27  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 20  
Initials: LF

Printed: 4/20/05 5:10:02 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

ARF: 47143

Sample ID: 86-WOPT-1042

APPL ID: AX17684

Sample Collection Date: 4/14/05

OCG: SC42VT-050414BN-85744

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/15/05	4/15/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/15/05	4/15/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	5.7	0.5	0.21	ug/L	4/15/05	4/15/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/15/05	4/15/05
CLP VOL	1,1-Dichloroethane	8.6	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	1,1-Dichloroethene	9.8	0.5	0.30	ug/L	4/15/05	4/15/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/15/05	4/15/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/15/05	4/15/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/15/05	4/15/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/15/05	4/15/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/15/05	4/15/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/15/05	4/15/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/15/05	4/15/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/15/05	4/15/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/15/05	4/15/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/15/05	4/15/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/15/05	4/15/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/15/05	4/15/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/15/05	4/15/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/15/05	4/15/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	4/15/05	4/15/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/15/05	4/15/05
CLP VOL	cis-1,2-Dichloroethene	66	0.5	0.16	ug/L	4/15/05	4/15/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/15/05	4/15/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/15/05	4/15/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/15/05	4/15/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/15/05	4/15/05

E = The reported value exceeds linear range.

Run #: 0414N34  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed 4/20/05 11:44:02 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1042

Sample Collection Date: 4/14/05

APPL Inc  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47143

APPL ID: AX17684

QCG: \$C42VT-050414BN-85744

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	Not detected	0.5	0.15	ug/L	4/15/05	4/15/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/15/05	4/15/05
CLP VOL	trans-1,2-Dichloroethene	0.72	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/15/05	4/15/05
CLP VOL	Trichloroethene	210 E	0.5	0.16	ug/L	4/15/05	4/15/05
CLP VOL	Vinyl Chloride	Not detected	0.5	0.23	ug/L	4/15/05	4/15/05
CLP VOL	Surrogate Recovery (BFB)	103	75-125		%	4/15/05	4/15/05
CLP VOL	Surrogate Recovery (DCA)	120	62-139		%	4/15/05	4/15/05
CLP VOL	Surrogate Recovery (TOL)	102	75-125		%	4/15/05	4/15/05

E = The reported value exceeds linear range.

Run #: 0414N34  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:44:02 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-1042**

Sample Collection Date: 4/14/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47143

**APPL ID: AX17684**

QCG: SC42VD-050417BN-85884

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Trichloroethene	170	2.5	0.80	ug/L	4/18/05	4/18/05
CLP VOL	Surrogate Recovery (BFB)	98.0	75-125		%	4/18/05	4/18/05
CLP VOL	Surrogate Recovery (DCA)	97.6	62-139		%	4/18/05	4/18/05
CLP VOL	Surrogate Recovery (TOL)	112	75-125		%	4/18/05	4/18/05

Run #: 0417N28  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 5  
Initials: LF

Printed: 4/20/05 5:10:02 PM  
APPL-F1-SC-MCROS/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47143

Sample ID: 86-WOPT-1043

APPL ID: AX17685

Sample Collection Date: 4/14/05

QCG: SC42VT-050414BN-85744

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/15/05	4/15/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/15/05	4/15/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	6.6	0.5	0.21	ug/L	4/15/05	4/15/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/15/05	4/15/05
CLP VOL	1,1-Dichloroethane	17	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	1,1-Dichloroethene	27	0.5	0.30	ug/L	4/15/05	4/15/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/15/05	4/15/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/15/05	4/15/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/15/05	4/15/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/15/05	4/15/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/15/05	4/15/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/15/05	4/15/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/15/05	4/15/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/15/05	4/15/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/15/05	4/15/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/15/05	4/15/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/15/05	4/15/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/15/05	4/15/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/15/05	4/15/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/15/05	4/15/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	4/15/05	4/15/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/15/05	4/15/05
CLP VOL	cis-1,2-Dichloroethene	810 E	0.5	0.16	ug/L	4/15/05	4/15/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/15/05	4/15/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/15/05	4/15/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/15/05	4/15/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/15/05	4/15/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0414N35  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:44:02 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1043

Sample Collection Date: 4/14/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47143

APPL ID: AX17685

QCG: SC42VT-050414BN-85744

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	28	0.5	0.15	ug/L	4/15/05	4/15/05
CLP VOL	Toluene	0.18 J	0.5	0.17	ug/L	4/15/05	4/15/05
CLP VOL	trans-1,2-Dichloroethene	2.5	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/15/05	4/15/05
CLP VOL	Trichloroethene	580 E	0.5	0.16	ug/L	4/15/05	4/15/05
CLP VOL	Vinyl Chloride	1.3	0.5	0.23	ug/L	4/15/05	4/15/05
CLP VOL	Surrogate Recovery (BFB)	102	75-125		%	4/15/05	4/15/05
CLP VOL	Surrogate Recovery (DCA)	119	62-139		%	4/15/05	4/15/05
CLP VOL	Surrogate Recovery (TOL)	98.4	75-125		%	4/15/05	4/15/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0414N35  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:44:02 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Blenkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-1043**

Sample Collection Date: 4/14/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47143

**APPL ID: AX17685**

QCG: SC42VD-050417BN-85884

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	730	10	3.20	ug/L	4/18/05	4/18/05
CLP VOL	Trichloroethene	520	10	3.20	ug/L	4/18/05	4/18/05
CLP VOL	Surrogate Recovery (BFB)	99.6	75-125		%	4/18/05	4/18/05
CLP VOL	Surrogate Recovery (DCA)	98.5	62-139		%	4/18/05	4/18/05
CLP VOL	Surrogate Recovery (TOL)	110	75-125		%	4/18/05	4/18/05

Run #: 0417N29

Instrument: Neo

Sequence: N050412

Dilution Factor: 20

Initials: LF

Printed: 4/20/05 5:10:02 PM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47143

Sample ID: 86-WOPT-1044

APPL ID: AX17686

Sample Collection Date: 4/14/05

CCG: SC42VT-050414BN-85744

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/15/05	4/15/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/15/05	4/15/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	20	0.5	0.21	ug/L	4/15/05	4/15/05
CLP VOL	1,1,2-Trichloroethane	0.20 J	0.5	0.2	ug/L	4/15/05	4/15/05
CLP VOL	1,1-Dichloroethane	18	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	1,1-Dichloroethene	40	0.5	0.30	ug/L	4/15/05	4/15/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/15/05	4/15/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/15/05	4/15/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/15/05	4/15/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/15/05	4/15/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/15/05	4/15/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/15/05	4/15/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/15/05	4/15/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/15/05	4/15/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/15/05	4/15/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/15/05	4/15/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/15/05	4/15/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/15/05	4/15/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/15/05	4/15/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/15/05	4/15/05
CLP VOL	Chloroform	0.23 J	0.5	0.16	ug/L	4/15/05	4/15/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/15/05	4/15/05
CLP VOL	cis-1,2-Dichloroethene	720 E	0.5	0.16	ug/L	4/15/05	4/15/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/15/05	4/15/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/15/05	4/15/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/15/05	4/15/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/15/05	4/15/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

Run #: 0414N36  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:44:02 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 98 Moffett Airfield

ARF: 47143

**Sample ID: 86-WOPT-1044**

**APPL ID: AX17686**

Sample Collection Date: 4/14/05

OCG: SC42VT-050414BN-85744

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	58	0.5	0.15	ug/L	4/15/05	4/15/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/15/05	4/15/05
CLP VOL	trans-1,2-Dichloroethene	3.9	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/15/05	4/15/05
CLP VOL	Trichloroethene	1400 E	0.5	0.16	ug/L	4/15/05	4/15/05
CLP VOL	Vinyl Chloride	1.6	0.5	0.23	ug/L	4/15/05	4/15/05
CLP VOL	Surrogate Recovery (BFB)	109	75-125		%	4/15/05	4/15/05
CLP VOL	Surrogate Recovery (DCA)	114	62-139		%	4/15/05	4/15/05
CLP VOL	Surrogate Recovery (TOL)	106	75-125		%	4/15/05	4/15/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

Run #: 0414N36  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed 4/20/05 11:44:02 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-1044**

Sample Collection Date: 4/14/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47143

**APPL ID: AX17686**

QCG: SC42VD-C50417BN-85884

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	580	25	8.00	ug/L	4/18/05	4/18/05
CLP VOL	Trichloroethene	1400	25	8.00	ug/L	4/18/05	4/18/05
CLP VOL	Surrogate Recovery (BFB)	101	75-125		%	4/18/05	4/18/05
CLP VOL	Surrogate Recovery (DCA)	99.0	62-139		%	4/18/05	4/18/05
CLP VOL	Surrogate Recovery (TOL)	106	75-125		%	4/18/05	4/18/05

Run #: 0417N30  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 50  
Initials: LF

Printed: 4/20/05 5:10:02 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1993.086D WATS Bldg 88 Moffett Airfield

ARF: 47143

Sample ID: 86-WOPT-1045

APPL ID: AX17687

Sample Collection Date: 4/14/05

QCG: SC42VT-050415AN-85745

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/15/05	4/15/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/15/05	4/15/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	15	0.5	0.21	ug/L	4/15/05	4/15/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/15/05	4/15/05
CLP VOL	1,1-Dichloroethane	16	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	1,1-Dichloroethene	31	0.5	0.30	ug/L	4/15/05	4/15/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/15/05	4/15/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/15/05	4/15/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/15/05	4/15/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/15/05	4/15/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/15/05	4/15/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/15/05	4/15/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/15/05	4/15/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/15/05	4/15/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/15/05	4/15/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/15/05	4/15/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/15/05	4/15/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/15/05	4/15/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/15/05	4/15/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/15/05	4/15/05
CLP VOL	Chloroform	0.19 J	0.5	0.16	ug/L	4/15/05	4/15/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/15/05	4/15/05
CLP VOL	cis-1,2-Dichloroethene	630 E	0.5	0.16	ug/L	4/15/05	4/15/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/15/05	4/15/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/15/05	4/15/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/15/05	4/15/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/15/05	4/15/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0415N06  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:44:02 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1045

Sample Collection Date: 4/14/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47143

APPL ID: AX17687

QCG: SC42VT-050415AN-85745

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	48	0.5	0.15	ug/L	4/15/05	4/15/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/15/05	4/15/05
CLP VOL	trans-1,2-Dichloroethene	4.8	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/15/05	4/15/05
CLP VOL	Trichloroethene	1300 E	0.5	0.16	ug/L	4/15/05	4/15/05
CLP VOL	Vinyl Chloride	1.4	0.5	0.23	ug/L	4/15/05	4/15/05
CLP VOL	Surrogate Recovery (BFB)	98.7	75-125		%	4/15/05	4/15/05
CLP VOL	Surrogate Recovery (DCA)	94.0	62-139		%	4/15/05	4/15/05
CLP VOL	Surrogate Recovery (TOL)	100	75-125		%	4/15/05	4/15/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0415N06  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:44:02 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech F.W., Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1045

Sample Collection Date: 4/14/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47143

APPL ID: AX17687

QCG: SC42VD-050512AH-86770

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	760	25	8.00	ug/L	5/12/05	5/12/05
CLP VOL	Trichloroethene	2100	25	8.00	ug/L	5/12/05	5/12/05
CLP VOL	Surrogate Recovery (BFB)	128 #	75-125		%	5/12/05	5/12/05
CLP VOL	Surrogate Recovery (DCA)	105	62-139		%	5/12/05	5/12/05
CLP VOL	Surrogate Recovery (TOL)	135 #	75-125		%	5/12/05	5/12/05

# = Recovery (or RPD) is outside QC limits.

Run #: 0512H14  
Instrument: HEWEY  
Sequence: H050509  
Dilution Factor: 50  
Initials: LF

Printed: 5/13/05 10:07:17 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47143

Sample ID: 86-WOPT-1046

APPL ID: AX17688

Sample Collection Date: 4/14/05

OCG: SC42VT-050414BN-85744

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/15/05	4/15/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/15/05	4/15/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	83	0.5	0.21	ug/L	4/15/05	4/15/05
CLP VOL	1,1,2-Trichloroethane	0.35 J	0.5	0.2	ug/L	4/15/05	4/15/05
CLP VOL	1,1-Dichloroethane	6.4	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	1,1-Dichloroethene	33	0.5	0.30	ug/L	4/15/05	4/15/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/15/05	4/15/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/15/05	4/15/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/15/05	4/15/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/15/05	4/15/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/15/05	4/15/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/15/05	4/15/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/15/05	4/15/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/15/05	4/15/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/15/05	4/15/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/15/05	4/15/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/15/05	4/15/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/15/05	4/15/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/15/05	4/15/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/15/05	4/15/05
CLP VOL	Chloroform	0.22 J	0.5	0.16	ug/L	4/15/05	4/15/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/15/05	4/15/05
CLP VOL	cis-1,2-Dichloroethene	61	0.5	0.16	ug/L	4/15/05	4/15/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/15/05	4/15/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/15/05	4/15/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/15/05	4/15/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/15/05	4/15/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0414N37  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:44:02 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1046

Sample Collection Date: 4/14/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47143

APPL ID: AX17688

QCG: SC42VT-050414BN-85744

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	68	0.5	0.15	ug/L	4/15/05	4/15/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/15/05	4/15/05
CLP VOL	trans-1,2-Dichloroethene	0.66	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/15/05	4/15/05
CLP VOL	Trichloroethene	1500 E	0.5	0.16	ug/L	4/15/05	4/15/05
CLP VOL	Vinyl Chloride	Not detected	0.5	0.23	ug/L	4/15/05	4/15/05
CLP VOL	Surrogate Recovery (BFB)	101	75-125		%	4/15/05	4/15/05
CLP VOL	Surrogate Recovery (DCA)	110	62-139		%	4/15/05	4/15/05
CLP VOL	Surrogate Recovery (TOL)	99.7	75-125		%	4/15/05	4/15/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0414N37  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:44:02 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1046

Sample Collection Date: 4/14/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47143

APPL ID: AX17688

QCG: SC42VD-050417BN-85884

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Trichloroethene	1700	25	8.00	ug/L	4/18/05	4/18/05
CLP VOL	Surrogate Recovery (BFB)	97.5	75-125		%	4/18/05	4/18/05
CLP VOL	Surrogate Recovery (DCA)	104	62-139		%	4/18/05	4/18/05
CLP VOL	Surrogate Recovery (TOL)	103	75-125		%	4/18/05	4/18/05

Run #: 0417N31  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 50  
Initials: LF

Printed: 4/20/05 5:10:02 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47143

Sample ID: 86-WOPT-1047

APPL ID: AX17689

Sample Collection Date: 4/14/05

QCQ: S86TTS-050415AC-85747

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 14.8 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	0.95	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.5	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.56	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1-Dichloroethane	Not detected	6	1.3	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1-Dichloroethene	Not detected	6	0.93	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.85	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.73	ug/Kg	4/15/05	4/15/05
EPA 8260B	2-Butanone	Not detected	59	0.83	ug/Kg	4/15/05	4/15/05
EPA 8260B	2-Hexanone	Not detected	59	0.19	ug/Kg	4/15/05	4/15/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	59	1.1	ug/Kg	4/15/05	4/15/05
EPA 8260B	Acetone	Not detected	120	3.3	ug/Kg	4/15/05	4/15/05
EPA 8260B	Benzene	Not detected	6	0.74	ug/Kg	4/15/05	4/15/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.81	ug/Kg	4/15/05	4/15/05
EPA 8260B	Bromoform	Not detected	6	0.94	ug/Kg	4/15/05	4/15/05
EPA 8260B	Bromomethane	Not detected	12	1.9	ug/Kg	4/15/05	4/15/05
EPA 8260B	Carbon disulfide	Not detected	6	1.3	ug/Kg	4/15/05	4/15/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.94	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chlorobenzene	Not detected	6	0.58	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chloroethane	Not detected	6	1.8	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chloroform	Not detected	6	1.7	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chloromethane	Not detected	6	2.1	ug/Kg	4/15/05	4/15/05
EPA 8260B	cis-1,2-Dichloroethene	20	6	1.3	ug/Kg	4/15/05	4/15/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.55	ug/Kg	4/15/05	4/15/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	Ethylbenzene	Not detected	6	0.75	ug/Kg	4/15/05	4/15/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	Methylene chloride	39 J	59	5.4	ug/Kg	4/15/05	4/15/05
EPA 8260B	Styrene	Not detected	6	0.81	ug/Kg	4/15/05	4/15/05
EPA 8260B	Tetrachloroethene	Not detected	6	0.63	ug/Kg	4/15/05	4/15/05
EPA 8260B	Toluene	Not detected	6	0.76	ug/Kg	4/15/05	4/15/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.6	ug/Kg	4/15/05	4/15/05

J = Estimated value, below quantitation limit.

Run #: 0415C09  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed 4/20/05 11:44 02 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 86 Moffett Airfield

Sample ID: **86-WOPT-1047**

Sample Collection Date: 4/14/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47143

APPL ID: **AX17689**

QCG: \$86TTS-050415AC-85747

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.50	ug/Kg	4/15/05	4/15/05
EPA 8260B	Trichloroethene	85	6	0.83	ug/Kg	4/15/05	4/15/05
EPA 8260B	Vinyl Acetate	Not detected	59	1.2	ug/Kg	4/15/05	4/15/05
EPA 8260B	Vinyl chloride	Not detected	6	2.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	Xylenes	Not detected	18	0.80	ug/Kg	4/15/05	4/15/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	115	52-149		%	4/15/05	4/15/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	107	65-135		%	4/15/05	4/15/05
EPA 8260B	Surrogate recovery: Toluene-d8	96.6	65-135		%	4/15/05	4/15/05

J = Estimated value, below quantitation limit.

Run #: 0415C09  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:44:02 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47143

Sample ID: 86-WOPT-1048

APPL ID: AX17690

Sample Collection Date: 4/14/05

QCG: \$86TTS-050415BC-85798

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 19.1 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	1.0	ug/Kg	4/16/05	4/16/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.5	ug/Kg	4/16/05	4/16/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.59	ug/Kg	4/16/05	4/16/05
EPA 8260B	1,1-Dichloroethane	4.3 J	6	1.4	ug/Kg	4/16/05	4/16/05
EPA 8260B	1,1-Dichloroethene	3.1 J	6	0.98	ug/Kg	4/16/05	4/16/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.89	ug/Kg	4/16/05	4/16/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.77	ug/Kg	4/16/05	4/16/05
EPA 8260B	2-Butanone	Not detected	62	0.88	ug/Kg	4/16/05	4/16/05
EPA 8260B	2-Hexanone	Not detected	62	0.20	ug/Kg	4/16/05	4/16/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	62	1.1	ug/Kg	4/16/05	4/16/05
EPA 8260B	Acetone	Not detected	120	3.5	ug/Kg	4/16/05	4/16/05
EPA 8260B	Benzene	Not detected	6	0.78	ug/Kg	4/16/05	4/16/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.85	ug/Kg	4/16/05	4/16/05
EPA 8260B	Bromoform	Not detected	6	0.99	ug/Kg	4/16/05	4/16/05
EPA 8260B	Bromomethane	Not detected	12	2.0	ug/Kg	4/16/05	4/16/05
EPA 8260B	Carbon disulfide	Not detected	6	1.3	ug/Kg	4/16/05	4/16/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.99	ug/Kg	4/16/05	4/16/05
EPA 8260B	Chlorobenzene	Not detected	6	0.61	ug/Kg	4/16/05	4/16/05
EPA 8260B	Chloroethane	Not detected	6	1.9	ug/Kg	4/16/05	4/16/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	4/16/05	4/16/05
EPA 8260B	Chloromethane	Not detected	6	2.2	ug/Kg	4/16/05	4/16/05
EPA 8260B	cis-1,2-Dichloroethene	150	6	1.3	ug/Kg	4/16/05	4/16/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.58	ug/Kg	4/16/05	4/16/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.0	ug/Kg	4/16/05	4/16/05
EPA 8260B	Ethylbenzene	Not detected	6	0.79	ug/Kg	4/16/05	4/16/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/16/05	4/16/05
EPA 8260B	Methylene chloride	Not detected	62	5.7	ug/Kg	4/16/05	4/16/05
EPA 8260B	Styrene	Not detected	6	0.85	ug/Kg	4/16/05	4/16/05
EPA 8260B	Tetrachloroethene	Not detected	6	0.67	ug/Kg	4/16/05	4/16/05
EPA 8260B	Toluene	Not detected	6	0.80	ug/Kg	4/16/05	4/16/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.7	ug/Kg	4/16/05	4/16/05

J = Estimated value, below quantitation limit.

Run #: 0415C36  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed 4/20/05 11:44:02 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 83 Moffett Airfield

Sample ID: 86-WOPT-1048

Sample Collection Date: 4/14/05

ARF: 47143

APPL ID: AX17690

OCG: \$86TTS-050415BC-85798

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.53	ug/Kg	4/16/05	4/16/05
EPA 8260B	Trichloroethene	330	6	0.88	ug/Kg	4/16/05	4/16/05
EPA 8260B	Vinyl Acetate	Not detected	62	1.2	ug/Kg	4/16/05	4/16/05
EPA 8260B	Vinyl chloride	Not detected	6	2.1	ug/Kg	4/16/05	4/16/05
EPA 8260B	Xylenes	Not detected	19	0.84	ug/Kg	4/16/05	4/16/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	109	52-149		%	4/16/05	4/16/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	110	65-135		%	4/16/05	4/16/05
EPA 8260B	Surrogate recovery: Toluene-d8	101	65-135		%	4/16/05	4/16/05

J = Estimated value, below quantitation limit.

Run #: 0415C36  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed 4/20/05 11:44:02 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47143

Sample ID: 86-WOPT-1049

APPL ID: AX17691

Sample Collection Date: 4/14/05

QCG: \$86TTS-050415AC-85747

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 21.7 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	1.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.6	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.61	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1-Dichloroethane	2.2 J	6	1.4	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1-Dichloroethene	3.7 J	6	1.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.92	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.79	ug/Kg	4/15/05	4/15/05
EPA 8260B	2-Butanone	Not detected	64	0.91	ug/Kg	4/15/05	4/15/05
EPA 8260B	2-Hexanone	Not detected	64	0.20	ug/Kg	4/15/05	4/15/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	64	1.2	ug/Kg	4/15/05	4/15/05
EPA 8260B	Acetone	Not detected	130	3.6	ug/Kg	4/15/05	4/15/05
EPA 8260B	Benzene	Not detected	6	0.80	ug/Kg	4/15/05	4/15/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.88	ug/Kg	4/15/05	4/15/05
EPA 8260B	Bromoform	Not detected	6	1.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	Bromomethane	Not detected	13	2.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	Carbon disulfide	Not detected	6	1.4	ug/Kg	4/15/05	4/15/05
EPA 8260B	Carbon tetrachloride	Not detected	6	1.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chlorobenzene	Not detected	6	0.63	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chloroethane	Not detected	6	2.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chloromethane	Not detected	6	2.3	ug/Kg	4/15/05	4/15/05
EPA 8260B	cis-1,2-Dichloroethene	100	6	1.4	ug/Kg	4/15/05	4/15/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.60	ug/Kg	4/15/05	4/15/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.1	ug/Kg	4/15/05	4/15/05
EPA 8260B	Ethylbenzene	Not detected	6	0.82	ug/Kg	4/15/05	4/15/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/15/05	4/15/05
EPA 8260B	Methylene chloride	43 J	64	5.8	ug/Kg	4/15/05	4/15/05
EPA 8260B	Styrene	Not detected	6	0.88	ug/Kg	4/15/05	4/15/05
EPA 8260B	Tetrachloroethene	16	6	0.69	ug/Kg	4/15/05	4/15/05
EPA 8260B	Toluene	Not detected	6	0.83	ug/Kg	4/15/05	4/15/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.7	ug/Kg	4/15/05	4/15/05

J = Estimated value, below quantitation limit.

Run #: 0415C11  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed 4/20/05 11:44:02 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47143

Sample ID: 86-WOPT-1049

APPL ID: AX17691

Sample Collection Date: 4/14/05

QCG: \$86TTS-050415AC-85747

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.55	ug/Kg	4/15/05	4/15/05
EPA 8260B	Trichloroethene	240	6	0.91	ug/Kg	4/15/05	4/15/05
EPA 8260B	Vinyl Acetate	Not detected	64	1.3	ug/Kg	4/15/05	4/15/05
EPA 8260B	Vinyl chloride	Not detected	6	2.1	ug/Kg	4/15/05	4/15/05
EPA 8260B	Xylenes	Not detected	19	0.87	ug/Kg	4/15/05	4/15/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	117	52-149		%	4/15/05	4/15/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	104	65-135		%	4/15/05	4/15/05
EPA 8260B	Surrogate recovery: Toluene-d8	93.2	65-135		%	4/15/05	4/15/05

J = Estimated value, below quantitation limit.

Run #: 0415C11  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:44:02 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47143

Sample ID: 86-WOPT-1050

APPL ID: AX17692

Sample Collection Date: 4/14/05

QCG: \$86TTS-050415AC-85747

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 14.0 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	0.94	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.4	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.56	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1-Dichloroethane	Not detected	6	1.3	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1-Dichloroethene	1.9 J	6	0.92	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.84	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.72	ug/Kg	4/15/05	4/15/05
EPA 8260B	2-Butanone	Not detected	58	0.83	ug/Kg	4/15/05	4/15/05
EPA 8260B	2-Hexanone	Not detected	58	0.19	ug/Kg	4/15/05	4/15/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	58	1.1	ug/Kg	4/15/05	4/15/05
EPA 8260B	Acetone	Not detected	120	3.3	ug/Kg	4/15/05	4/15/05
EPA 8260B	Benzene	Not detected	6	0.73	ug/Kg	4/15/05	4/15/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.80	ug/Kg	4/15/05	4/15/05
EPA 8260B	Bromoform	Not detected	6	0.93	ug/Kg	4/15/05	4/15/05
EPA 8260B	Bromomethane	Not detected	12	1.9	ug/Kg	4/15/05	4/15/05
EPA 8260B	Carbon disulfide	Not detected	6	1.3	ug/Kg	4/15/05	4/15/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.93	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chlorobenzene	Not detected	6	0.57	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chloroethane	Not detected	6	1.8	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chloroform	Not detected	6	1.7	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chloromethane	Not detected	6	2.1	ug/Kg	4/15/05	4/15/05
EPA 8260B	cis-1,2-Dichloroethene	55	6	1.2	ug/Kg	4/15/05	4/15/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.55	ug/Kg	4/15/05	4/15/05
EPA 8260B	Dibromochloromethane	Not detected	6	0.99	ug/Kg	4/15/05	4/15/05
EPA 8260B	Ethylbenzene	Not detected	6	0.74	ug/Kg	4/15/05	4/15/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	Methylene chloride	41 J	58	5.3	ug/Kg	4/15/05	4/15/05
EPA 8260B	Styrene	Not detected	6	0.80	ug/Kg	4/15/05	4/15/05
EPA 8260B	Tetrachloroethene	4.5 J	6	0.63	ug/Kg	4/15/05	4/15/05
EPA 8260B	Toluene	Not detected	6	0.76	ug/Kg	4/15/05	4/15/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.6	ug/Kg	4/15/05	4/15/05

J = Estimated value, below quantitation limit.

Run #: 0415C12  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:44:02 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1050

Sample Collection Date: 4/14/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47143

APPL ID: AX17692

QCG: \$86TTS-050415AC-85747

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.50	ug/Kg	4/15/05	4/15/05
EPA 8260B	Trichloroethene	220	6	0.83	ug/Kg	4/15/05	4/15/05
EPA 8260B	Vinyl Acetate	Not detected	58	1.2	ug/Kg	4/15/05	4/15/05
EPA 8260B	Vinyl chloride	Not detected	6	2.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	Xylenes	Not detected	17	0.79	ug/Kg	4/15/05	4/15/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	109	52-149		%	4/15/05	4/15/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	99.4	65-135		%	4/15/05	4/15/05
EPA 8260B	Surrogate recovery: Toluene-d8	99.3	65-135		%	4/15/05	4/15/05

J = Estimated value, below quantitation limit.

Run #: 0415C12  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:44:02 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47143

Sample ID: 86-WOPT-1051

APPL ID: AX17693

Sample Collection Date: 4/14/05

QCG: \$86TTS-050415AC-85747

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 18.9 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	1.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.5	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.59	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1-Dichloroethane	3.2 J	6	1.4	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1-Dichloroethene	11	6	0.97	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.89	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.76	ug/Kg	4/15/05	4/15/05
EPA 8260B	2-Butanone	Not detected	62	0.88	ug/Kg	4/15/05	4/15/05
EPA 8260B	2-Hexanone	Not detected	62	0.20	ug/Kg	4/15/05	4/15/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	62	1.1	ug/Kg	4/15/05	4/15/05
EPA 8260B	Acetone	Not detected	120	3.5	ug/Kg	4/15/05	4/15/05
EPA 8260B	Benzene	Not detected	6	0.78	ug/Kg	4/15/05	4/15/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.85	ug/Kg	4/15/05	4/15/05
EPA 8260B	Bromoform	Not detected	6	0.99	ug/Kg	4/15/05	4/15/05
EPA 8260B	Bromomethane	Not detected	12	2.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	Carbon disulfide	Not detected	6	1.3	ug/Kg	4/15/05	4/15/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.99	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chlorobenzene	Not detected	6	0.60	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chloroethane	Not detected	6	1.9	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chloromethane	Not detected	6	2.2	ug/Kg	4/15/05	4/15/05
EPA 8260B	cis-1,2-Dichloroethene	66	6	1.3	ug/Kg	4/15/05	4/15/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.58	ug/Kg	4/15/05	4/15/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	Ethylbenzene	Not detected	6	0.79	ug/Kg	4/15/05	4/15/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/15/05	4/15/05
EPA 8260B	Methylene chloride	46 J	62	5.6	ug/Kg	4/15/05	4/15/05
EPA 8260B	Styrene	Not detected	6	0.85	ug/Kg	4/15/05	4/15/05
EPA 8260B	Tetrachloroethene	1.6 J	6	0.67	ug/Kg	4/15/05	4/15/05
EPA 8260B	Toluene	Not detected	6	0.80	ug/Kg	4/15/05	4/15/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.7	ug/Kg	4/15/05	4/15/05

J = Estimated value, below quantitation limit.

Run #: 0415C13  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:44:02 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1051

Sample Collection Date: 4/14/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47143

APPL ID: AX17693

QCG: S86TTS-050415AC-85747

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.53	ug/Kg	4/15/05	4/15/05
EPA 8260B	Trichloroethene	440	6	0.88	ug/Kg	4/15/05	4/15/05
EPA 8260B	Vinyl Acetate	Not detected	62	1.2	ug/Kg	4/15/05	4/15/05
EPA 8260B	Vinyl chloride	Not detected	6	2.1	ug/Kg	4/15/05	4/15/05
EPA 8260B	Xylenes	Not detected	18	0.84	ug/Kg	4/15/05	4/15/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	111	52-149		%	4/15/05	4/15/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	103	65-135		%	4/15/05	4/15/05
EPA 8260B	Surrogate recovery: Toluene-d8	98.3	65-135		%	4/15/05	4/15/05

J = Estimated value, below quantitation limit.

Run #: 0415C13  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:44:02 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Blenkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47143

Sample ID: 86-WOPT-1052

APPL ID: AX17694

Sample Collection Date: 4/14/05

QCG: \$86TTS-050415AC-85747

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 18.3 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	0.99	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.5	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.59	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1-Dichloroethane	1.8 J	6	1.4	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1-Dichloroethene	6.8	6	0.97	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.88	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.76	ug/Kg	4/15/05	4/15/05
EPA 8260B	2-Butanone	Not detected	61	0.87	ug/Kg	4/15/05	4/15/05
EPA 8260B	2-Hexanone	Not detected	61	0.20	ug/Kg	4/15/05	4/15/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	61	1.1	ug/Kg	4/15/05	4/15/05
EPA 8260B	Acetone	Not detected	120	3.4	ug/Kg	4/15/05	4/15/05
EPA 8260B	Benzene	Not detected	6	0.77	ug/Kg	4/15/05	4/15/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.84	ug/Kg	4/15/05	4/15/05
EPA 8260B	Bromoform	Not detected	6	0.98	ug/Kg	4/15/05	4/15/05
EPA 8260B	Bromomethane	Not detected	12	2.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	Carbon disulfide	Not detected	6	1.3	ug/Kg	4/15/05	4/15/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.98	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chlorobenzene	Not detected	6	0.60	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chloroethane	Not detected	6	1.9	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chloromethane	Not detected	6	2.2	ug/Kg	4/15/05	4/15/05
EPA 8260B	cis-1,2-Dichloroethene	32	6	1.3	ug/Kg	4/15/05	4/15/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.58	ug/Kg	4/15/05	4/15/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	Ethylbenzene	Not detected	6	0.78	ug/Kg	4/15/05	4/15/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/15/05	4/15/05
EPA 8260B	Methylene chloride	29 J	61	5.6	ug/Kg	4/15/05	4/15/05
EPA 8260B	Styrene	Not detected	6	0.84	ug/Kg	4/15/05	4/15/05
EPA 8260B	Tetrachloroethene	12	6	0.66	ug/Kg	4/15/05	4/15/05
EPA 8260B	Toluene	Not detected	6	0.80	ug/Kg	4/15/05	4/15/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.6	ug/Kg	4/15/05	4/15/05

J = Estimated value, below quantitation limit.

Run #: 0415C14  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed: 4/20/05 11:44:02 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1052

Sample Collection Date: 4/14/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47143

APPL ID: AX17694

QCG: S86TTS-050415AC-85747

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.53	ug/Kg	4/15/05	4/15/05
EPA 8260B	Trichloroethene	550	6	0.87	ug/Kg	4/15/05	4/15/05
EPA 8260B	Vinyl Acetate	Not detected	61	1.2	ug/Kg	4/15/05	4/15/05
EPA 8260B	Vinyl chloride	Not detected	6	2.1	ug/Kg	4/15/05	4/15/05
EPA 8260B	Xylenes	Not detected	18	0.83	ug/Kg	4/15/05	4/15/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	117	52-149		%	4/15/05	4/15/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	111	65-135		%	4/15/05	4/15/05
EPA 8260B	Surrogate recovery: Toluene-d8	95.8	65-135		%	4/15/05	4/15/05

J = Estimated value, below quantitation limit.

Run #: 0415C14  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed 4/20/05 11:44:02 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-539

Sample Collection Date: 4/14/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47143

APPL ID: AX17663

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	438	25	0.14	mg/L	4/20/05	4/23/05
6010B	Calcium (Ca)	435 E	5	0.0272	mg/L	4/20/05	4/23/05
6010B	Iron (Fe)	48.7	0.50	0.13	mg/L	4/20/05	4/23/05
6010B	Iron (Fe)	47.0 E	0.1	0.0258	mg/L	4/20/05	4/23/05
6010B	Magnesium (Mg)	137	25	0.065	mg/L	4/20/05	4/23/05
6010B	Magnesium (Mg)	140 E	5	0.0129	mg/L	4/20/05	4/23/05
6010B	Potassium (K)	7.8	5	0.0995	mg/L	4/20/05	4/23/05
6010B	Sodium (Na)	45.8	5	0.1111	mg/L	4/20/05	4/23/05

E = The reported value exceeds linear range.

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PL-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-541

Sample Collection Date: 4/14/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47143

APPL ID: AX17665

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	636	50	0.27	mg/L	4/20/05	4/26/05
6010B	Calcium (Ca)	623 E	5	0.0272	mg/L	4/20/05	4/23/05
6010B	Iron (Fe)	239	1.0	0.26	mg/L	4/20/05	4/26/05
6010B	Iron (Fe)	209 E	0.1	0.0258	mg/L	4/20/05	4/23/05
6010B	Magnesium (Mg)	169	25	0.065	mg/L	4/20/05	4/23/05
6010B	Magnesium (Mg)	152 E	5	0.0129	mg/L	4/20/05	4/23/05
6010B	Potassium (K)	7.6	5	0.0995	mg/L	4/20/05	4/23/05
6010B	Sodium (Na)	42.5	5	0.1111	mg/L	4/20/05	4/23/05

E = The reported value exceeds linear range.

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2L-F1-SC-MCRes/MCPQL-REG MDLs



## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990 086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-542**

Sample Collection Date: 4/14/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47143

**APPL ID: AX17666**

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	392	25	0.14	mg/L	4/20/05	4/23/05
6010B	Calcium (Ca)	351 E	5	0.0272	mg/L	4/20/05	4/23/05
6010B	Iron (Fe)	21.8	0.1	0.0258	mg/L	4/20/05	4/23/05
6010B	Magnesium (Mg)	88.1	5	0.0129	mg/L	4/20/05	4/23/05
6010B	Potassium (K)	6.4	5	0.0995	mg/L	4/20/05	4/23/05
6010B	Sodium (Na)	38.3	5	0.1111	mg/L	4/20/05	4/23/05

E = The reported value exceeds linear range.

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<sup>2</sup>L-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-543

Sample Collection Date: 4/14/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47143

APPL ID: AX17667

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	335	25	0.14	mg/L	4/20/05	4/23/05
6010B	Calcium (Ca)	309 E	5	0.0272	mg/L	4/20/05	4/23/05
6010B	Iron (Fe)	27.3	0.1	0.0258	mg/L	4/20/05	4/23/05
6010B	Magnesium (Mg)	94.8	5	0.0129	mg/L	4/20/05	4/23/05
6010B	Potassium (K)	5.4	5	0.0995	mg/L	4/20/05	4/23/05
6010B	Sodium (Na)	39.7	5	0.1111	mg/L	4/20/05	4/23/05

E = The reported value exceeds linear range.

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2L-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-544

Sample Collection Date: 4/14/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47143

APPL ID: AX17668

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	361	25	0.14	mg/L	4/20/05	4/23/05
6010B	Calcium (Ca)	321 E	5	0.0272	mg/L	4/20/05	4/23/05
6010B	Iron (Fe)	33.2	0.1	0.0258	mg/L	4/20/05	4/23/05
6010B	Magnesium (Mg)	92.3	5	0.0129	mg/L	4/20/05	4/23/05
6010B	Potassium (K)	6.3	5	0.0995	mg/L	4/20/05	4/23/05
6010B	Sodium (Na)	41.3	5	0.1111	mg/L	4/20/05	4/23/05

E = The reported value exceeds linear range.

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<sup>2</sup>L-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1041

Sample Collection Date: 4/14/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47143

APPL ID: AX17683

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	1100	100	0.54	mg/L	4/20/05	4/26/05
6010B	Calcium (Ca)	1050 E	5	0.0272	mg/L	4/20/05	4/23/05
6010B	Iron (Fe)	10.8	0.1	0.0258	mg/L	4/20/05	4/23/05
6010B	Magnesium (Mg)	142	25	0.065	mg/L	4/20/05	4/23/05
6010B	Magnesium (Mg)	128 E	5	0.0129	mg/L	4/20/05	4/23/05
6010B	Potassium (K)	13.0	5	0.0995	mg/L	4/20/05	4/23/05
6010B	Sodium (Na)	52.7	25	0.56	mg/L	4/20/05	4/23/05
6010B	Sodium (Na)	51.2 E	5	0.1111	mg/L	4/20/05	4/23/05

E = The reported value exceeds linear range.

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1042

Sample Collection Date: 4/14/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47143

APPL ID: AX17684

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	416	25	0.14	mg/L	4/20/05	4/23/05
6010B	Calcium (Ca)	406 E	5	0.0272	mg/L	4/20/05	4/23/05
6010B	Iron (Fe)	76.9	0.50	0.13	mg/L	4/20/05	4/23/05
6010B	Iron (Fe)	67.6 E	0.1	0.0258	mg/L	4/20/05	4/23/05
6010B	Magnesium (Mg)	96.4	5	0.0129	mg/L	4/20/05	4/23/05
6010B	Potassium (K)	13.7	5	0.0995	mg/L	4/20/05	4/23/05
6010B	Sodium (Na)	45.3	5	0.1111	mg/L	4/20/05	4/23/05

E = The reported value exceeds linear range.

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2L-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1043

Sample Collection Date: 4/14/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47143

APPL ID: AX17685

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	219	25	0.14	mg/L	4/20/05	4/23/05
6010B	Calcium (Ca)	209 E	5	0.0272	mg/L	4/20/05	4/23/05
6010B	Iron (Fe)	28.6	0.1	0.0258	mg/L	4/20/05	4/23/05
6010B	Magnesium (Mg)	72.5	5	0.0129	mg/L	4/20/05	4/23/05
6010B	Potassium (K)	5.3	5	0.0995	mg/L	4/20/05	4/23/05
6010B	Sodium (Na)	43.0	5	0.1111	mg/L	4/20/05	4/23/05

E = The reported value exceeds linear range.

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Blenkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1044

Sample Collection Date: 4/14/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47143

APPL ID: AX17686

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	678	50	0.27	mg/L	4/20/05	4/26/05
6010B	Calcium (Ca)	657 E	5	0.0272	mg/L	4/20/05	4/23/05
6010B	Iron (Fe)	13.5	0.1	0.0258	mg/L	4/20/05	4/23/05
6010B	Magnesium (Mg)	125	25	0.065	mg/L	4/20/05	4/23/05
6010B	Magnesium (Mg)	113 E	5	0.0129	mg/L	4/20/05	4/23/05
6010B	Potassium (K)	6.6	5	0.0995	mg/L	4/20/05	4/23/05
6010B	Sodium (Na)	46.1	5	0.1111	mg/L	4/20/05	4/23/05

E = The reported value exceeds linear range.

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47143

**Sample ID: 86-WOPT-1045**

**APPL ID: AX17687**

Sample Collection Date: 4/14/05

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	273	25	0.14	mg/L	4/20/05	4/23/05
6010B	Calcium (Ca)	259 E	5	0.0272	mg/L	4/20/05	4/23/05
6010B	Iron (Fe)	17.0	0.1	0.0258	mg/L	4/20/05	4/23/05
6010B	Magnesium (Mg)	73.7	25	0.065	mg/L	4/20/05	4/23/05
6010B	Magnesium (Mg)	70.8 E	5	0.0129	mg/L	4/20/05	4/23/05
6010B	Potassium (K)	4.5 J	5	0.0965	mg/L	4/20/05	4/23/05
6010B	Sodium (Na)	43.2	5	0.1111	mg/L	4/20/05	4/23/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

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<sup>2</sup>L-F1-SC-MCRes/MCPQL-REG MDLs



## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47143

Sample ID: 66-WOPT-1C46

APPL ID: AX17688

Sample Collection Date: 4/14/05

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	241	25	0.14	mg/L	4/20/05	4/23/05
6010B	Calcium (Ca)	220 E	5	0.0272	mg/L	4/20/05	4/23/05
6010B	Iron (Fe)	57.9	0.50	0.13	mg/L	4/20/05	4/23/05
6010B	Iron (Fe)	50.5 E	0.1	0.0258	mg/L	4/20/05	4/23/05
6010B	Magnesium (Mg)	97.0	5	0.0129	mg/L	4/20/05	4/23/05
6010B	Potassium (K)	13.6	5	0.0995	mg/L	4/20/05	4/23/05
6010B	Sodium (Na)	43.3	5	0.1111	mg/L	4/20/05	4/23/05

E = The reported value exceeds linear range.

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3L-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-538

Sample Collection Date: 4/14/05

APPL ID: AX17662

ARF: 47143

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
SW846 9060	Total Organic Carbon	0.85	0.5	0.129	mg/L	4/26/05	4/26/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FVV, Inc.  
1940 E. Deare Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-539

Sample Collection Date: 4/14/05

APPL ID: AX17663

ARF: 47143

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	47100	1000	80	ug/L	4/15/05	4/15/05
EPA 300.0	Nitrate	3140	200	15	ug/L	4/15/05	4/15/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/15/05	4/15/05
EPA 300.0	Sulfate	477000 E	1000	90	ug/L	4/15/05	4/15/05
EPA 300.0	Sulfate	407000	5000	450	ug/L	4/15/05	4/15/05
EPA 310.1	Bicarbonate	410	5	0.787	mg/L	4/22/05	4/22/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/22/05	4/22/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-541

Sample Collection Date: 4/14/05

APPL ID: AX17665

ARF: 47143

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	44500	1000	80	ug/L	4/15/05	4/15/05
EPA 300.0	Nitrate	3770	200	15	ug/L	4/15/05	4/15/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/15/05	4/15/05
EPA 300.0	Sulfate	362000 E	1000	90	ug/L	4/15/05	4/15/05
EPA 300.0	Sulfate	305000	5000	450	ug/L	4/15/05	4/15/05
EPA 310.1	Bicarbonate	373	5	0.787	mg/L	4/22/05	4/22/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/22/05	4/22/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-542

Sample Collection Date: 4/14/05

APPL ID: AX17666

ARF: 47143

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	40900	1000	80	ug/L	4/15/05	4/15/05
EPA 300.0	Nitrate	7230	200	15	ug/L	4/15/05	4/15/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/15/05	4/15/05
EPA 300.0	Sulfate	471000 E	1000	90	ug/L	4/15/05	4/15/05
EPA 300.0	Sulfate	403000	5000	450	ug/L	4/15/05	4/15/05
EPA 310.1	Bicarbonate	356	5	0.787	mg/L	4/22/05	4/22/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/22/05	4/22/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-543

Sample Collection Date: 4/14/05

APPL ID: AX17667

ARF: 47143

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Sulfate	399000	1000	80	ug/L	4/16/05	4/16/05
EPA 300.0	Chloride	41100	1000	80	ug/L	4/15/05	4/15/05
EPA 300.0	Nitrate	10500	200	15	ug/L	4/15/05	4/15/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/15/05	4/15/05
EPA 300.0	Sulfate	471000 E	1000	90	ug/L	4/15/05	4/15/05
EPA 310.1	Bicarbonate	362	5	0.787	mg/L	4/22/05	4/22/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/22/05	4/22/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1540 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 85-WOPT-544

Sample Collection Date: 4/14/05

APPL ID: AX17668

ARF: 47143

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Sulfate	319000	5000	450	ug/L	4/16/05	4/16/05
EPA 300.0	Chloride	42400	1000	80	ug/L	4/15/05	4/15/05
EPA 300.0	Nitrate	9310	200	15	ug/L	4/15/05	4/15/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/15/05	4/15/05
EPA 300.0	Sulfate	381000 E	1000	90	ug/L	4/15/05	4/15/05
EPA 310.1	Bicarbonate	342	5	0.787	mg/L	4/22/05	4/22/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/22/05	4/22/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

### Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1040

Sample Collection Date: 4/14/05

APPL ID: AX17682

ARF: 47143

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
SW846 9060	Total Organic Carbon	1.9	0.5	0.129	mg/L	4/26/05	4/26/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs



# Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Blenkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1041

Sample Collection Date: 4/14/05

APPL ID: AX17683

ARF: 47143

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Sulfate	194000	5000 8	450 0.45	ug/L	4/16/05	4/16/05
EPA 300.0	Chloride	26600	1000	80	ug/L	4/15/05	4/15/05
EPA 300.0	Nitrate	11500	200	15	ug/L	4/15/05	4/15/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/15/05	4/15/05
EPA 300.0	Sulfate	232000 E	1000	90	ug/L	4/15/05	4/15/05
EPA 310.1	Bicarbonate	349	5	0.787	mg/L	4/22/05	4/22/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/22/05	4/22/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1042

Sample Collection Date: 4/14/05

APPL ID: AX17684

ARF: 47143

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Sulfate	255000	1000	80	ug/L	4/16/05	4/16/05
EPA 300.0	Chloride	34800	1000	80	ug/L	4/15/05	4/15/05
EPA 300.0	Nitrate	2540	200	15	ug/L	4/15/05	4/15/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/15/05	4/15/05
EPA 300.0	Sulfate	306000 E	1000	90	ug/L	4/15/05	4/15/05
EPA 310.1	Bicarbonate	400	5	0.787	mg/L	4/22/05	4/22/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/22/05	4/22/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1043

Sample Collection Date: 4/14/05

APPL ID: AX17685

ARF: 47143

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Sulfate	256000	500	450	ug/L	4/16/05	4/16/05
EPA 300.0	Chloride	33400	1000	80	ug/L	4/15/05	4/15/05
EPA 300.0	Nitrate	2540	200	15	ug/L	4/15/05	4/15/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/15/05	4/15/05
EPA 300.0	Sulfate	307000 E	1000	90	ug/L	4/15/05	4/15/05
EPA 310.1	Bicarbonate	356	5	0.787	mg/L	4/22/05	4/22/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/22/05	4/22/05

E = The reported value exceeds linear range.

Printed: 5/11/05 11:05:23 AM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1044

Sample Collection Date: 4/14/05

APPL ID: AX17686

ARF: 47143

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Sulfate	251000	5700	450	µg/L	4/16/05	4/16/05
EPA 300.0	Chloride	35200	1000	80	µg/L	4/15/05	4/15/05
EPA 300.0	Nitrate	6570	200	15	µg/L	4/15/05	4/15/05
EPA 300.0	Nitrite	Not detected	100	33	µg/L	4/15/05	4/15/05
EPA 300.0	Sulfate	301000 E	1000	90	µg/L	4/15/05	4/15/05
EPA 310.1	Bicarbonate	336	5	0.787	mg/L	4/22/05	4/22/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/22/05	4/22/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1045

Sample Collection Date: 4/14/05

APPL ID: AX17687

ARF: 47143

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Sulfate	250000	5000	450	µg/L	4/16/05	4/16/05
EPA 300.0	Chloride	34800	1000	80	µg/L	4/15/05	4/15/05
EPA 300.0	Nitrate	5390	200	15	µg/L	4/15/05	4/15/05
EPA 300.0	Nitrite	Not detected	100	33	µg/L	4/15/05	4/15/05
EPA 300.0	Sulfate	300000 E	1000	90	µg/L	4/15/05	4/15/05
EPA 310.1	Bicarbonate	333	5	0.787	mg/L	4/22/05	4/22/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/22/05	4/22/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech F/W, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-1046**

Sample Collection Date: 4/14/05

**APPL ID: AX17688**

ARF: 47143

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	35600	1000	80	ug/L	4/15/05	4/15/05
EPA 300.0	Nitrate	2820	200	15	ug/L	4/15/05	4/15/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/15/05	4/15/05
EPA 300.0	Sulfate	94900	1000	90	ug/L	4/15/05	4/15/05
EPA 310.1	Bicarbonate	222	5	0.787	mg/L	4/22/05	4/22/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/22/05	4/22/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs



May 2, 2005

Service Request No: K2502775

Robert Wise  
APPL, Inc.  
4203 W. Swift Avenue  
Fresno, CA 93722

**RE: 47143**

Dear Robert:

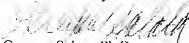
Enclosed are the results of the sample(s) submitted to our laboratory on April 16, 2005. For your reference, these analyses have been assigned our service request number K2502775.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3376.

Respectfully submitted,

**Columbia Analytical Services, Inc.**

  
Gregory Salata, Ph.D.  
Project Chemist

GS/jeb

Page 1 of 1

COLUMBIA ANALYTICAL SERVICES, INC.

Client: Agriculture & Priority Pollutants Labs  
Project: 47143  
Sample Matrix: Soil

Service Request No.: K2502775  
Date Received: 04/16/05

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier III validation deliverables including summary forms and all of the associated raw data for each of the analyses. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Twenty-three soil samples were received for analysis at Columbia Analytical Services on 04/16/05. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

General Chemistry Parameters

No anomalies associated with the analysis of these samples were observed.

Approved by 

Date 5/12/05

00005



## COLUMBIA ANALYTICAL SERVICES, INC.

## Analytical Report

Client : Agriculture & Priority Pollutants Labs  
 Project Name : NA  
 Project Number : 47143  
 Sample Matrix : SOIL

Service Request : K2502775  
 Date Collected : 04/14/05  
 Date Received : 04/16/05

## Carbon, Total Organic

Analysis Method : Walkley-Black  
 Test Notes :

Units : mg/Kg (ppm)  
 Basis : Dry

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
86-WOPT-532	K2502775-001	2000	900	1	04/27/05	4080	
86-WOPT-533	K2502775-002	2000	900	1	04/27/05	3230	
86-WOPT-534	K2502775-003	2000	900	1	04/27/05	3520	
86-WOPT-535	K2502775-004	2000	900	1	04/27/05	3200	
86-WOPT-536	K2502775-005	2000	900	1	04/27/05	3500	
86-WOPT-537	K2502775-006	2000	900	1	04/27/05	3050	
86-WOPT-545	K2502775-007	2000	900	1	04/27/05	4580	
86-WOPT-546	K2502775-008	2000	900	1	04/27/05	2640	
86-WOPT-547	K2502775-009	2000	900	1	04/27/05	8120	
86-WOPT-548	K2502775-010	2000	900	1	04/27/05	4510	
86-WOPT-549	K2502775-011	2000	900	1	04/27/05	3220	
86-WOPT-1034	K2502775-012	2000	900	1	04/27/05	1390	J
86-WOPT-1035	K2502775-013	2000	900	1	04/27/05	4510	
86-WOPT-1036	K2502775-014	2000	900	1	04/27/05	4440	
86-WOPT-1037	K2502775-015	2000	900	1	04/27/05	1510	J
86-WOPT-1038	K2502775-016	2000	900	1	04/27/05	980	J
86-WOPT-1039	K2502775-017	2000	900	1	04/27/05	ND	
86-WOPT-1047	K2502775-018	2000	900	1	04/27/05	1570	J
86-WOPT-1048	K2502775-019	2000	900	1	04/27/05	2900	
86-WOPT-1049	K2502775-020	2000	900	1	04/27/05	1450	J
86-WOPT-1050	K2502775-021	2000	900	1	04/27/05	1010	J
86-WOPT-1051	K2502775-022	2000	900	1	04/27/05	1610	J
86-WOPT-1052	K2502775-023	2000	900	1	04/27/05	1010	J
Method Blank	K2502775-MB	2000	900	1	04/27/05	ND	
Method Blank	K2502775-MB	2000	900	1	04/27/05	ND	

00011

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Moffett Air Field, Building 88, CTO 86

**Collection Date:** April 14, 2005

**LDC Report Date:** May 26, 2005

**Matrix:** Soil/Water

**Parameters:** Volatiles

**Validation Level:** EPA Level III & IV

**Laboratory:** APPL, Inc.

**Sample Delivery Group (SDG):** 47143

### Sample Identification

86-WOPT-532	86-WOPT-1039
86-WOPT-533**	86-WOPT-1047
86-WOPT-534	86-WOPT-1048**
86-WOPT-535	86-WOPT-1049
86-WOPT-536	86-WOPT-1050
86-WOPT-536DL	86-WOPT-1051
86-WOPT-537	86-WOPT-1052
86-WOPT-545	86-WOPT-532MS
86-WOPT-545DL	86-WOPT-532MSD
86-WOPT-546	86-WOPT-538
86-WOPT-546DL	86-WOPT-1033
86-WOPT-547**	86-WOPT-1040
86-WOPT-548	
86-WOPT-549	
86-WOPT-550	
86-WOPT-1034**	
86-WOPT-1035	
86-WOPT-1036	
86-WOPT-1037	
86-WOPT-1038**	

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 29 soil samples and 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## **III. Initial Calibration**

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 15.0% for each individual compound and less than or equal to 30.0% for calibration check compounds (CCCs).

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination ( $r^2$ ) was greater than or equal to 0.990 .

Average relative response factors (RRF) for all system performance check compounds (SPCCs) were within method and validation criteria.

## **IV. Continuing Calibration**

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 20.0% for all compounds with the following exceptions:

Data	Compound	%D	Associated Samples	Flag	A or P
4/14/05	Bromomethane	33	86-WOPT-533** 86-WOPT-534 86-WOPT-535 86-WOPT-536 86-WOPT-537 86-WOPT-545 86-WOPT-546 86-WOPT-547** 86-WOPT-548 86-WOPT-549 86-WOPT-550 86-WOPT-1034** 86-WOPT-1035 86-WOPT-1036 050414S	J (all detects) UJ (all non-detects)	A
4/15/05 (0415C02S)	2-Hexanone  Bromoform	39  24	86-WOPT-1037 86-WOPT-1038** 86-WOPT-1039 86-WOPT-1047 86-WOPT-1049 86-WOPT-1050 86-WOPT-1051 86-WOPT-1052 86-WOPT-532MS 86-WOPT-532MSD 050415S	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A
4/15/05 (0414M23W)	Bromomethane	29	All water samples in SDG 47143	J (all detects) UJ (all non-detects)	A
4/15/05 (0415C21S)	2-Hexanone  4-Methyl-2-pentanone	22  25	86-WOPT-532 86-WOPT-1048** 050415S2	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A

All of the continuing calibration RRF values for all system performance check compounds (SPCCs) were within method and validation criteria.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Analysis Date	Compound TIC (RT in minutes)	Concentration	Associated Samples
050415S	4/15/05	Methylene chloride	7.8 ug/Kg	86-WOPT-1037 86-WOPT-1038** 86-WOPT-1039 86-WOPT-1047 86-WOPT-1049 86-WOPT-1050 86-WOPT-1051 86-WOPT-1052

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
86-WOPT-1038**	Methylene chloride	51 ug/Kg	57U ug/Kg
86-WOPT-1039	Methylene chloride	57 ug/Kg	63U ug/Kg
86-WOPT-1047	Methylene chloride	39 ug/Kg	59U ug/Kg
86-WOPT-1049	Methylene chloride	43 ug/Kg	64U ug/Kg
86-WOPT-1050	Methylene chloride	41 ug/Kg	58U ug/Kg
86-WOPT-1051	Methylene chloride	46 ug/Kg	62U ug/Kg
86-WOPT-1052	Methylene chloride	29 ug/Kg	61U ug/Kg

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Compound	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
86-WOPT-532MS/MSD (86-WOPT-532)	Trichloroethene	189 (61-135)	156 (61-135)	-	J (all detects)	A

### VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

### IX. Regional Quality Assurance and Quality Control

Not applicable.

### X. Internal Standards

All internal standard areas and retention times were within QC limits.

### XI. Target Compound Identifications

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

### XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
86-WOPT-536	Trichloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	A
86-WOPT-545	cis-1,2-Dichloroethene Tetrachloroethene Trichloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects) J (all detects)	A
86-WOPT-546	cis-1,2-Dichloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	A
86-WOPT-547**	cis-1,2-Dichloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	P

Raw data were not evaluated for the samples reviewed by Level III criteria.

### **XIII. Tentatively Identified Compounds (TICs)**

Tentatively identified compounds were not reported by the laboratory.

### **XIV. System Performance**

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

### **XV. Overall Assessment**

Data flags are summarized at the end of this report if data has been qualified.

### **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

### **XVII. Field Blanks**

Sample 86-WOPT-1033 was identified as a trip blank. No volatile contaminants were found in this blank with the following exceptions:

<b>Trip Blank ID</b>	<b>Compound</b>	<b>Concentration (ug/L)</b>
86-WOPT-1033	Acetone Methylene chloride	7.7 0.59

Samples 86-WOPT-538 and 86-WOPT-1040 were identified as equipment rinsates. No volatile contaminants were found in these blanks.



**Moffett Air Field, Building 88, CTO 86**  
**Volatiles - Data Qualification Summary - SDG 47143**

SDG	Sample	Compound	Flag	A or P	Reason
47143	86-WOPT-533** 86-WOPT-534 86-WOPT-535 86-WOPT-536 86-WOPT-537 86-WOPT-545 86-WOPT-546 86-WOPT-547** 86-WOPT-548 86-WOPT-549 86-WOPT-550 86-WOPT-1034** 86-WOPT-1035 86-WOPT-1036 86-WOPT-538 86-WOPT-1033 86-WOPT-1040	Bromomethane	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
47143	86-WOPT-1037 86-WOPT-1038** 86-WOPT-1039 86-WOPT-1047 86-WOPT-1049 86-WOPT-1050 86-WOPT-1051 86-WOPT-1052	2-Hexanone  Bromoform	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
47143	86-WOPT-532 86-WOPT-1046**	2-Hexanone  4-Methyl-2-pentanone	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
47143	86-WOPT-532	Trichloroethene	J (all detects)	A	Matrix spike/Matrix spike duplicates (%R)
47143	86-WOPT-536	Trichloroethene	J (all detects)	A	Compound quantitation and CROLS
47143	86-WOPT-545	cis-1,2-Dichloroethene Tetrachloroethane Trichloroethene	J (all detects) J (all detects) J (all detects)	A	Compound quantitation and CROLS
47143	86-WOPT-546	cis-1,2-Dichloroethene	J (all detects)	A	Compound quantitation and CROLS
47143	86-WOPT-547**	cis-1,2-Dichloroethene	J (all detects)	P	Compound quantitation and CROLS

**Moffett Air Field, Building 88, CTO 86****Volatiles - Laboratory Blank Data Qualification Summary - SDG 47143**

<b>SDG</b>	<b>Sample</b>	<b>Compound TIC (RT in minutes)</b>	<b>Modified Final Concentration</b>	<b>A or P</b>
47143	86-WOPT-1038**	Methylene chloride	57U ug/Kg	A
47143	86-WOPT-1039	Methylene chloride	63U ug/Kg	A
47143	86-WOPT-1047	Methylene chloride	59U ug/Kg	A
47143	86-WOPT-1049	Methylene chloride	64U ug/Kg	A
47143	86-WOPT-1050	Methylene chloride	58U ug/Kg	A
47143	86-WOPT-1051	Methylene chloride	62U ug/Kg	A
47143	86-WOPT-1052	Methylene chloride	61U ug/Kg	A

**Laboratory Data Consultants, Inc.**  
**Data Validation Report**

**Project/Site Name:** Moffett Air Field, Building 88, CTO 86  
**Collection Date:** April 14, 2005  
**LDC Report Date:** May 26, 2005  
**Matrix:** Water  
**Parameters:** Volatiles  
**Validation Level:** EPA Level III & IV  
**Laboratory:** APPL, Inc.

**Sample Delivery Group (SDG):** 47143

**Sample Identification**

86-WOPT-539**	86-WOPT-1045DL
86-WOPT-539DL**	86-WOPT-1046
86-WOPT-540	86-WOPT-1046DL
86-WOPT-541	86-WOPT-1043MS
86-WOPT-541DL	86-WOPT-1043MSD
86-WOPT-542**	
86-WOPT-542DL**	
86-WOPT-543	
86-WOPT-543DL	
86-WOPT-544	
86-WOPT-544DL	
86-WOPT-1041	
86-WOPT-1041DL	
86-WOPT-1042**	
86-WOPT-1042DL**	
86-WOPT-1043	
86-WOPT-1043DL	
86-WOPT-1044	
86-WOPT-1044DL	
86-WOPT-1045	

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 25 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Contract Laboratory Program Statement of Work (SOW) OLM04.2 for Volatiles.

This review follows USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999); the following subsections correlate to the above guidelines.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met with the following exceptions:

Sample	Compound	Total Days From Sample Collection Until Analysis	Required Holding Time (in Days) From Sample Collection Until Analysis	Flag	A or P
86-WOPT-1045DL	All TCL compounds	28	14	J (all detects) UJ (all non-detects)	A

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals with the following exceptions:

Sample	Compound	Total Time From BFB Tuning Until Analysis	Required Analysis Time (in Hours) From BFB Tuning Until Analysis	Flag	A or P
86-WOPT-1043MSD	All TCL compounds	12 hrs. 3 mins.	12 hrs.	None	P

All ion abundance requirements were met.

## III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 30.0% for all compounds with the following exceptions:

Date	Compound	%RSD	Associated Samples	Flag	A or P
4/12/05	Chloroethane	32	86-WOPT-539**	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A
	Acetone	40	86-WOPT-540 86-WOPT-541 86-WOPT-542** 86-WOPT-543 86-WOPT-544 86-WOPT-1041 86-WOPT-1042** 86-WOPT-1043 86-WOPT-1044 86-WOPT-1045 86-WOPT-1046 86-WOPT-1043MS 86-WOPT-1043MSD 050415W1 050415W2		

Average relative response factors (RRF) for all volatile target compounds and system monitoring compounds were within validation criteria.

#### IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 25.0% with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
4/14/05	Chloromethane	28	86-WOPT-539**	J (all detects) UJ (all non-detects)	A
	Bromomethane	27	86-WOPT-540		
	Chloroethane	28	86-WOPT-541		
	Acetone	34	86-WOPT-542**		
			86-WOPT-543 86-WOPT-544 86-WOPT-1041 86-WOPT-1042** 86-WOPT-1043 86-WOPT-1044 86-WOPT-1046 050415W1		

All of the continuing calibration RRF values were within validation criteria.

#### V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Analysis Date	Compound TIC (RT in minutes)	Concentration	Associated Samples
050415W1	4/15/05	Trichloroethene	0.31 ug/L	86-WOPT-539** 86-WOPT-540 86-WOPT-541 86-WOPT-542** 86-WOPT-543 86-WOPT-544 86-WOPT-1041 86-WOPT-1042** 86-WOPT-1043 86-WOPT-1044 86-WOPT-1046
050415W2	4/15/05	Acetone Trichloroethene	2.8 ug/L 0.21 ug/L	86-WOPT-1045

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
86-WOPT-540	Trichloroethene	0.25 ug/L	0.5U ug/L

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the SOW. All surrogate recoveries (%R) were within QC limits with the following exceptions:

Sample	Surrogate	%R (Limits)	Compound	Flag	A or P
050512W	Bromofluorobenzene Toluene-d8	128 (75-125) 129 (75-125)	All TCL compounds	J (all detects)	P
86-WOPT-1045DL	Bromofluorobenzene Toluene-d8	128 (75-125) 135 (75-125)	All TCL compounds	J (all detects)	A

## VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable.

Recalculated results confirm the reported results with the following exceptions:

Spike ID (Associated Samples)	Compound	Reported (RPD)	Recalculated (RPD)	Flag	A or P
86-WOPT-1043MS/MSD (86-WOPT-1043)	1,1-Dichloroethene	7.2	200	None	P

Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Compound	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
86-WOPT-1043MS/MSD (86-WOPT-1043)	1,1-Dichloroethene	-	-	200 ( $\leq 30$ )	J (all detects) UJ (all non-detects)	A

### VIII. Laboratory Control Samples (LCS)

Although laboratory control samples were not required by the method, laboratory control samples were reported by the laboratory. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

### IX. Regional Quality Assurance and Quality Control

Not applicable.

### X. Internal Standards

All internal standard areas and retention times were within QC limits.

### XI. Target Compound Identifications

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

### XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
86-WOPT-539**	cis-1,2-Dichloroethene Tetrachloroethene Trichloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects) J (all detects)	A



Sample	Compound	Finding	Criteria	Flag	A or P
86-WOPT-541 86-WOPT-542** 86-WOPT-543 86-WOPT-544 86-WOPT-1041 86-WOPT-1043 86-WOPT-1044 86-WOPT-1045	cis-1,2-Dichloroethene Trichloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects)	A
86-WOPT-1042** 86-WOPT-1046	Trichloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	A

Raw data were not evaluated for the samples reviewed by Level III criteria.

### XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

### XIV. System Performance

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

### XV. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### XVI. Field Duplicates

Samples 86-WOPT-542\*\* and 86-WOPT-543, samples 86-WOPT-542DL\*\* and 86-WOPT-543DL, samples 86-WOPT-1044 and 86-WOPT-1045, and samples 86-WOPT-1044DL and 86-WOPT-1045DL were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	86-WOPT-542**	86-WOPT-543	
1,1,1-Trichloroethane	1.8	1.8	0
1,1,2-Trichloro-1,2,2-trifluoroethane	30	31	3
1,1,2-Trichloroethane	0.20	0.5U	Not calculable
1,1-Dichloroethane	13	13	0

Compound	Concentration (ug/L)		RPD
	86-WOPT-S42**	86-WOPT-S43	
1,1-Dichloroethene	28	28	0
Chloroform	0.33	0.32	3
cis-1,2-Dichloroethene	250	240	4
Tetrachloroethene	2.9	2.7	7
trans-1,2-Dichloroethene	2.0	2.9	37
Trichloroethene	1200	1100	9

Compound	Concentration (ug/L)		RPD
	86-WOPT-S42DL**	86-WOPT-S43DL	
cis-1,2-Dichloroethene	190	180	5
Trichloroethene	1200	1100	9

Compound	Concentration (ug/L)		RPD
	86-WOPT-1044	86-WOPT-1045	
1,1,2-Trichloro-1,2,2-trifluoroethane	20	15	29
1,1,2-Trichloroethane	0.20	0.5U	Not calculable
1,1-Dichloroethane	18	16	12
1,1-Dichloroethene	40	31	25
Chloroform	0.23	0.19	19
cis-1,2-Dichloroethene	720	630	13
Tetrachloroethene	58	48	19
trans-1,2-Dichloroethene	3.9	4.8	21

Compound	Concentration (ug/L)		RPD
	66-WOPT-1044	88-WOPT-1045	
Trichloroethene	1400	1300	7
Vinyl chloride	1.6	1.4	13

Compound	Concentration (ug/L)		RPD
	86-WOPT-1044DL	86-WOPT-1045DL	
cis-1,2-Dichloroethene	560	760	27
Trichloroethene	1400	2100	40

## XVII. Field Blanks

Sample 86-WOPT-540 was identified as a trip blank. No volatile contaminants were found in this blank with the following exceptions:

Trip Blank ID	Compound	Concentration (ug/L)
86-WOPT-540	Acetone	7.6
	Methylene chloride	0.57
	Trichloroethene	0.25

**Moffett Air Field, Building 88, CTO 86**  
**Volatiles - Data Qualification Summary - SDG 47143**

SDG	Sample	Compound	Flag	A or P	Reason
47143	86-WOPT-1045DL	All TCL compounds	J (all detects) UJ (all non-detects)	A	Technical holding times
47143	86-WOPT-539** 86-WOPT-540 86-WOPT-541 86-WOPT-542** 86-WOPT-543 86-WOPT-544 86-WOPT-1041 86-WOPT-1042** 86-WOPT-1043 86-WOPT-1044 86-WOPT-1045 86-WOPT-1046	Chloroethane  Acetone	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Initial calibration (%RSD)
47143	86-WOPT-539** 86-WOPT-540 86-WOPT-541 86-WOPT-542** 86-WOPT-543 86-WOPT-544 86-WOPT-1041 86-WOPT-1042** 86-WOPT-1043 86-WOPT-1044 86-WOPT-1046	Chloromethane Bromomethane Chloroethane Acetone	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
47143	86-WOPT-1045DL	All TCL compounds	J (all detects)	A	Surrogate spikes (%R)
47143	86-WOPT-1043	1,1-Dichloroethene	None	P	Matrix spike/Matrix spike duplicates (RPD recalculation)
47143	86-WOPT-1043	1,1-Dichloroethene	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicates (RPD)
47143	86-WOPT-539**	cis-1,2-Dichloroethene Tetrachloroethene Trichloroethene	J (all detects) J (all detects) J (all detects)	A	Compound quantitation and CROLS
47143	86-WOPT-541 86-WOPT-542** 86-WOPT-543 86-WOPT-544 86-WOPT-1041 86-WOPT-1043 86-WOPT-1044 86-WOPT-1045	cis-1,2-Dichloroethene Trichloroethene	J (all detects) J (all detects)	A	Compound quantitation and CROLS

SDG	Sample	Compound	Flag	A or P	Reason
47143	86-WOPT-1042** 86-WOPT-1046	Trichloroethene	J (all detects)	A	Compound quantitation and CROLS

**Moffett Air Field, Building 88, CTO 86**

**Volatiles - Laboratory Blank Data Qualification Summary - SDG 47143**

SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P
47143	86-WOPT-540	Trichloroethene	0.5U ug/L	A

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Moffett Air Field, Building 88, CTO 86

**Collection Date:** April 14, 2005

**LDC Report Date:** May 25, 2005

**Matrix:** Water

**Parameters:** Metals

**Validation Level:** EPA Level III & IV

**Laboratory:** APPL, Inc.

**Sample Delivery Group (SDG):** 47143

### Sample Identification

86-WOPT-539**	86-WOPT-1046
86-WOPT-539DL**	86-WOPT-1046DL
86-WOPT-541	86-WOPT-1043MS
86-WOPT-541DL	86-WOPT-1043MSD
86-WOPT-542**	
86-WOPT-542DL**	
86-WOPT-543	
86-WOPT-543DL	
86-WOPT-544	
86-WOPT-544DL	
86-WOPT-1041	
86-WOPT-1041DL	
86-WOPT-1042**	
86-WOPT-1042DL**	
86-WOPT-1043	
86-WOPT-1043DL	
86-WOPT-1044	
86-WOPT-1044DL	
86-WOPT-1045	
86-WOPT-1045DL	

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 24 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 6010B for Metals. The metals analyzed were Calcium, Iron, Magnesium, Potassium, and Sodium.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Calibration**

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

## **III. Blanks**

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found in the initial, continuing and preparation blanks with the following exceptions:

<b>Method Blank ID</b>	<b>Analyte</b>	<b>Maximum Concentration</b>	<b>Associated Samples</b>
PB (prep blank)	Sodium	0.23 mg/L	All samples in SDG 47143

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or were significantly greater ( >5X blank contaminants) than the concentrations found in the associated method blanks.

## **IV. ICP Interference Check Sample (ICS) Analysis**

The frequency of analysis was met.

The criteria for analysis were met.

## **V. Matrix Spike Analysis**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:



Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
86-WOPT-1043MS/MSD (86-WOPT-539** 86-WOPT-539DL** 86-WOPT-541 86-WOPT-541DL 86-WOPT-542** 86-WOPT-543 86-WOPT-544 86-WOPT-1041 86-WOPT-1041DL 86-WOPT-1042** 86-WOPT-1043 86-WOPT-1044 86-WOPT-1044DL 86-WOPT-1045 86-WOPT-1045DL 86-WOPT-1046)	Magnesium	-	130 (80-120)	-	J (all detects)	A

## VI. Duplicate Sample Analysis

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

## VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Internal Standards

ICP-MS was not utilized in this SDG.

## IX. Furnace Atomic Absorption QC

Graphite furnace atomic absorption was not utilized in this SDG.

## X. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met.

## XI. Sample Result Verification

All sample result verification met validation criteria with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
86-WOPT-539** 86-WOPT-541	Calcium Iron Magnesium	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects) J (all detects)	A
86-WOPT-542** 86-WOPT-543 86-WOPT-544 86-WOPT-1043	Calcium	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	A
86-WOPT-1041	Calcium Magnesium Sodium	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects) J (all detects)	A
86-WOPT-1042** 86-WOPT-1046	Calcium Iron	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects)	A
86-WOPT-1044 86-WOPT-1045	Calcium Magnesium	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects)	A

Raw data were not evaluated for samples reviewed by Level III criteria.

## XII. Overall Assessment of Data

Data flags have been summarized at the end of this report.

## XIII. Field Duplicates

Samples 86-WOPT-542\*\* and 86-WOPT-543, samples 86-WOPT-542DL\*\* and 86-WOPT-543DL, samples 86-WOPT-1044 and 86-WOPT-1045, and samples 86-WOPT-1044DL and 86-WOPT-1045DL were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:

Compound	Concentration (mg/L)		RPD
	86-WOPT-542**	86-WOPT-543	
Calcium	351	309	13
Iron	21.8	27.3	22
Magnesium	88.1	94.8	7
Potassium	6.4	5.4	17
Sodium	38.3	39.7	4

Compound	Concentration (mg/L)		RPD
	88-WOPT-542DL**	88-WOPT-543DL	
Calcium	392	335	16

Compound	Concentration (mg/L)		RPD
	88-WOPT-1044	88-WOPT-1045	
Calcium	657	259	87
Iron	13.5	17.0	23
Magnesium	113	70.8	46
Potassium	6.6	4.5	38
Sodium	46.1	43.2	6

Compound	Concentration (mg/L)		RPD
	88-WOPT-1044DL	88-WOPT-1045DL	
Calcium	678	273	85
Magnesium	125	73.7	52

#### XIV. Field Blanks

No field blanks were identified in this SDG.

**Moffett Air Field, Building 88, CTO 86**  
**Metals - Data Qualification Summary - SDG 47143**

SDG	Sample	Analyte	Flag	A or P	Reason
47143	86-WOPT-539** 86-WOPT-539DL** 86-WOPT-541 86-WOPT-541DL 86-WOPT-542** 86-WOPT-543 86-WOPT-544 86-WOPT-1041 86-WOPT-1041DL 86-WOPT-1042** 86-WOPT-1043 86-WOPT-1044 86-WOPT-1044DL 86-WOPT-1045 86-WOPT-1045DL 86-WOPT-1046	Magnesium	J (all detects)	A	Matrix spike/Matrix spike duplicates (%R)
47143	86-WOPT-539** 86-WOPT-541	Calcium Iron Magnesium	J (all detects) J (all detects) J (all detects)	A	Sample result verification
47143	86-WOPT-542** 86-WOPT-543 86-WOPT-544 86-WOPT-1043	Calcium	J (all detects)	A	Sample result verification
47143	86-WOPT-1041	Calcium Magnesium Sodium	J (all detects) J (all detects) J (all detects)	A	Sample result verification
47143	86-WOPT-1042** 86-WOPT-1046	Calcium Iron	J (all detects) J (all detects)	A	Sample result verification
47143	86-WOPT-1044 86-WOPT-1045	Calcium Magnesium	J (all detects) J (all detects)	A	Sample result verification

**Moffett Air Field, Building 88, CTO 86**  
**Metals - Laboratory Blank Data Qualification Summary - SDG 47143**

No Sample Data Qualified in this SDG

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Moffett Air Field, Building 88, CTO 86

**Collection Date:** April 14, 2005

**LDC Report Date:** May 25, 2005

**Matrix:** Soil/Water

**Parameters:** Wet Chemistry

**Validation Level:** EPA Level III & IV

**Laboratory:** APPL, Inc./Columbia Analytical Services, Inc.

**Sample Delivery Group (SDG):** 47143/K2502775

### Sample Identification

86-WOPT-532	86-WOPT-548	86-WOPT-1047
86-WOPT-533**	86-WOPT-549	86-WOPT-1048**
86-WOPT-534	86-WOPT-1034**	86-WOPT-1049
86-WOPT-535	86-WOPT-1035	86-WOPT-1050
86-WOPT-536	86-WOPT-1036	86-WOPT-1051
86-WOPT-537	86-WOPT-1037	86-WOPT-1052
86-WOPT-538	86-WOPT-1038**	86-WOPT-532DUP
86-WOPT-539**	86-WOPT-1039	86-WOPT-1043MS
86-WOPT-539DL**	86-WOPT-1040	86-WOPT-1043MSD
86-WOPT-541	86-WOPT-1041	86-WOPT-1050DUP
86-WOPT-541DL	86-WOPT-1041DL	
86-WOPT-542**	86-WOPT-1042**	
86-WOPT-542DL**	86-WOPT-1042DL**	
86-WOPT-543	86-WOPT-1043	
86-WOPT-543DL	86-WOPT-1043DL	
86-WOPT-544	86-WOPT-1044	
86-WOPT-544DL	86-WOPT-1044DL	
86-WOPT-545	86-WOPT-1045	
86-WOPT-546	86-WOPT-1045DL	
86-WOPT-547**	86-WOPT-1046	

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 25 soil samples and 25 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 300.0 for Chloride, Nitrate, Nitrite, and Sulfate, EPA Method 310.1 for Carbonate and Bicarbonate, and Walkley-Black method and EPA SW 846 Method 9060 for Total Organic Carbon.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section IX.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Calibration**

### **a. Initial Calibration**

All criteria for the initial calibration of each method were met.

### **b. Calibration Verification**

Calibration verification frequency and analysis criteria were met for each method when applicable.

## **III. Blanks**

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the method blanks.

## **IV. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spika ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
86-WOPT-1043MS/MSD (86-WOPT-539** 86-WOPT-539DL** 86-WOPT-541 86-WOPT-541DL 86-WOPT-542** 86-WOPT-542DL** 86-WOPT-543 86-WOPT-543DL 86-WOPT-544 86-WOPT-544DL 86-WOPT-1041 86-WOPT-1041DL 86-WOPT-1042** 86-WOPT-1042DL** 86-WOPT-1043 86-WOPT-1043DL 86-WOPT-1044 86-WOPT-1044DL 86-WOPT-1045 86-WOPT-1045DL 86-WOPT-1046)	Sulfate	76.7 (80-120)	76.7 (80-120)	-	J (all detects) UJ (all non-detects)	A

## V. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## VI. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VII. Sample Result Verification

All sample result verification met validation criteria with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
86-WOPT-539** 86-WOPT-541 86-WOPT-542** 86-WOPT-543 86-WOPT-544 86-WOPT-1041 86-WOPT-1042** 86-WOPT-1043 86-WOPT-1044 86-WOPT-1045	Sulfate	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	A

Raw data were not evaluated for the samples reviewed by Level III criteria.



## VIII. Overall Assessment of Data

Data flags are summarized at the end of this report.

## IX. Field Duplicates

Samples 86-WOPT-542\*\* and 86-WOPT-543, samples 86-WOPT-542DL\*\* and 86-WOPT-543DL, samples 86-WOPT-1044 and 86-WOPT-1045, and samples 86-WOPT-1044DL and 86-WOPT-1045DL were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration (ug/L)		RPD
	86-WOPT-542**	86-WOPT-543	
Chloride	40900	41100	0
Nitrate	7230	10500	37
Sulfate	471000	471000	0

Analyte	Concentration (mg/L)		RPD
	86-WOPT-542**	86-WOPT-543	
Bicarbonate	356	362	1

Analyte	Concentration (ug/L)		RPD
	86-WOPT-542DL**	86-WOPT-543DL	
Sulfate	403000	399000	1

Analyte	Concentration (ug/L)		RPD
	88-WOPT-1044	88-WOPT-1045	
Chloride	35200	34800	1
Nitrate	6570	5390	20
Sulfate	301000	300000	0

Analyte	Concentration (mg/L)		RPD
	86-WOPT-1044	86-WOPT-1045	
Bicarbonate	336	333	1

Analyte	Concentration (ug/L)		RPD
	86-WOPT-1044DL	86-WOPT-1045DL	
Sulfate	251000	250000	0

## X. Field Blanks

Samples 86-WOPT-538 and 86-WOPT-1040 were identified as equipment rinsates. No contaminant concentrations were found in these blanks with the following exceptions:

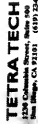
Equipment Rinse ID	Analyte	Concentration (mg/L)
86-WOPT-538	Total organic carbon	0.85
86-WOPT-1040	Total organic carbon	1.9

**Moffett Air Field, Building 88, CTO 86**  
**Wet Chemistry - Data Qualification Summary - SDG 47143/K2502775**

SDG	Sample	Analyte	Flag	A or P	Reason
47143/ K2502775	86-WOPT-539** 86-WOPT-539DL** 86-WOPT-541 86-WOPT-541DL 86-WOPT-542** 86-WOPT-542DL** 86-WOPT-543 86-WOPT-543DL 86-WOPT-544 86-WOPT-544DL 86-WOPT-1041 86-WOPT-1041DL 86-WOPT-1042** 86-WOPT-1042DL** 86-WOPT-1043 86-WOPT-1043DL 86-WOPT-1044 86-WOPT-1044DL 86-WOPT-1045 86-WOPT-1045DL 86-WOPT-1046	Sulfate	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicates (%R)
47143/ K2502775	86-WOPT-539** 86-WOPT-541 86-WOPT-542** 86-WOPT-543 86-WOPT-544 86-WOPT-1041 86-WOPT-1042** 86-WOPT-1043 86-WOPT-1044 86-WOPT-1045	Sulfate	J (all detects)	A	Sample result verification

**Moffett Air Field, Building 88, CTO 86**  
**Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 47143/K2502775**

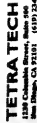
No Sample Data Qualified in this SDG



**NUMBER**  
**10363**

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management

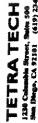
06491103-12



NUMBER 10372

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management

6049163-1,2



## CHAIN-OF-CUSTODY RECORD

White - Laboratory; Pink - Laboratory; Canary - Project File; Manilla - Data Management

0047163-121

Data Validation Package  
for  
Moffett Air Field, WATS Building 88, CTO 86  
ARF 47163

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## Case Narrative

ARF: 47163

Project: 1990.086D WATS Bldg 88 Moffett Airfield

State Certification Number: CA1312

Results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

### Sample Receipt Information:

The sample group was received April 15, 2005, at 3.0°C and 3.5°C. The samples were assigned Analytical Request Form (ARF) number 47163. The sample numbers and requested analyses were compared to the chains of custody. The soil TOC analysis was sub-contracted to Columbia Analytical Laboratory. No exception was noted.

Sample Table

CLIENT ID	APPL ID	Matrix	Date Sampled	Date Received
86-WOPT-551	AX17823	WATER	4/15/05	4/15/05
86-WOPT-552	AX17824	WATER	4/15/05	4/15/05
86-WOPT-553	AX17825	WATER	4/15/05	4/15/05
86-WOPT-554	AX17826	WATER	4/15/05	4/15/05
86-WOPT-555	AX17827	WATER	4/15/05	4/15/05
86-WOPT-556	AX17828	SOIL	4/15/05	4/15/05
86-WOPT-557	AX17829	SOIL	4/15/05	4/15/05
86-WOPT-558	AX17830	SOIL	4/15/05	4/15/05
86-WOPT-559	AX17831	SOIL	4/15/05	4/15/05
86-WOPT-560	AX17832	WATER	4/15/05	4/15/05
86-WOPT-1053	AX17833	WATER	4/15/05	4/15/05
86-WOPT-1054	AX17834	WATER	4/15/05	4/15/05
86-WOPT-1055	AX17835	WATER	4/15/05	4/15/05
86-WOPT-1056	AX17836	WATER	4/15/05	4/15/05
86-WOPT-1057	AX17837	WATER	4/15/05	4/15/05
86-WOPT-1058	AX17838	WATER	4/15/05	4/15/05
86-WOPT-1059	AX17839	SOIL	4/15/05	4/15/05
86-WOPT-1060	AX17840	SOIL	4/15/05	4/15/05
86-WOPT-1061	AX17841	SOIL	4/15/05	4/15/05
86-WOPT-1062	AX17842	SOIL	4/15/05	4/15/05
86-WOPT-1063	AX17843	SOIL	4/15/05	4/15/05
86-WOPT-1064	AX17844	WATER	4/15/05	4/15/05



# EPA Method 8260B and CLP Volatiles

## Volatile Organic Analysis

### Sample Preparation:

The samples were purged according to EPA method 5030B, 5035, and CLP. All holding times were met.

### Sample Analysis Information:

The samples were analyzed according to the method using a Hewlett Packard Gas Chromatograph with a mass spectrometer detector.

### Quality Control/Assurance

#### Calibrations:

Initial and continuing calibrations were performed according to the method. For the continuing calibration verification performed on Chico file ID: 0415C21S.D, 2-Hexanone had a 22%D, and 4-Methyl-2-pentanone had a 25%D. For the continuing calibration performed on Neo file ID: 0415N16W.D, Chloromethane had a 26%D, Acetone had a 28%D, and 4-Methyl-2-pentanone had a 28%D. All other calibration criteria were met.

#### Blanks:

No target analyte was detected above the reporting limits in the method blanks.

#### Spikes:

Laboratory Control Spikes (LCS) were used for quality assurance. A second-source standard was used for the LCS. All spike and second-source criteria were met.

MS/MSD analyses were requested on samples 86-WOPT-556 and 86-WOPT-1058. For the MS/MSD on sample 86-WOPT-556, Trichloroethene recovered outside of the 61-135% control limit at 1486% and -611% and Chlorobenzene had a 30.3% RPD. For the MS/MSD performed on sample 86-WOPT-1058, 1,1-Dichloroethene recovered below the 75% lower control limit at 10.0% and 20.0% and Trichloroethene below the 71% lower control limit at -1520% and -1690%. All other recoveries were acceptable.

#### Surrogates

All surrogate recoveries were within control limits.

#### Tuning:

The instrument was tuned using BFB. All method criteria were met.

#### Internal Standards

The internal standard area counts were compared to the mid-point of the initial calibration according to method 8260. Samples 86-WOPT-556 and the MS on 86-WOPT-556 recovered the 1,4-Dichlorobenzene-d4 below the lower control limit. Sample 86-WOPT-556 was re-analyzed at a 50 to 1 dilution. The compounds that exceeded linear calibration range as well as the compounds

calculated using the low IS are reported on a second form 1 for these two samples. The compounds that are calculated using the IS are 1,1,2,2-Tetrachloroethane and 4-Methyl-2-Pentanone. The internal standard area counts were compared to the continuing calibration according to CLP. All method criteria were met.

**Summary:**

No additional problem was encountered.

## **EPA Methods 6010B**

### **Metals**

#### **Digestion Information:**

The water was digested according to EPA methods 3010A. No exceptions were encountered. All holding times were met.

#### **Analysis Information:**

##### **Samples:**

The sample was analyzed for dissolved metals according to EPA method 6010B using a Perkin Elmer Optima 4300DV.

##### **Calibrations:**

Calibrations were performed according to the methods for the initial calibration and the initial calibration verification. The initial calibration verification is prepared from a second source standard.

##### **Blanks:**

Calcium was detected below the reporting limit but above the MDL in the 050421B method blank at 0.044mg/L. No other target metal was detected above the reporting limits in the method blank.

##### **Spikes:**

Laboratory Control Spikes (LCS/LCSD) and Matrix Spikes (MS/MSD) were used for quality assurance. LCS recoveries were within acceptance limits. For the MS/MSD performed on sample 86-WOPT-1058, Calcium recovered at 60.0% and 192%, Iron at 230% and 1920%, Magnesium at 128% and 236%, and Potassium at 122% in the MSD. The concentration of Calcium, Iron, and Magnesium were greater than three times the spiking concentration. All other acceptance criteria were met.

#### **Summary:**

No analytical exception is noted. All data are acceptable.

# **EPA Methods 300.0, 310.1 and 9060A**

## **Anions, Carbonates & Bi-carbonates and Total Organic Carbon**

### **Sample Preparation Information:**

A Dionex DX500 ion chromatograph was used for the EPA 300.0 analysis. The TOC was analyzed using a Shimadzu TOC-5050A instrument. The samples were screened down to the MDL.

### **Analysis Information:**

#### **Samples:**

The sample was analyzed according to the methods. A Dionex DX500 ion chromatograph was used for the EPA 300.0 analysis.

#### **Calibrations:**

Calibrations were performed according to the methods for the initial calibration and the initial calibration verification. The initial calibration verification is prepared from a second source standard.

#### **Blanks:**

No target analyte was detected above the reporting limits in the method blanks.

#### **Spikes:**


Laboratory Control Spikes (LCS/LCSD), sample duplicates, and Matrix Spikes (MS/MSD) were used for quality assurance. For the MS/MSD performed on sample 86-WOPT-1058, Sulfate below the 80% lower control limit at 78.0% and 78.0%. Acceptance criteria were met.

### **Summary:**

No analytical exception is noted.

## CERTIFICATION

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the hard copy has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

 5/17/05  
\_\_\_\_\_  
Leonard Fong, Ph.D, Laboratory Director / Date

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47163

Sample ID: 86-WOPT-551

APPL ID: AX17823

Sample Collection Date: 4/15/05

CCG: \$C42VT-050415BN-85797

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/15/05	4/15/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/15/05	4/15/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	0.5	0.21	ug/L	4/15/05	4/15/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/15/05	4/15/05
CLP VOL	1,1-Dichloroethane	Not detected	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	1,1-Dichloroethene	Not detected	0.5	0.30	ug/L	4/15/05	4/15/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/15/05	4/15/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/15/05	4/15/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/15/05	4/15/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/15/05	4/15/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/15/05	4/15/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/15/05	4/15/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/15/05	4/15/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/15/05	4/15/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/15/05	4/15/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/15/05	4/15/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/15/05	4/15/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/15/05	4/15/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/15/05	4/15/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/15/05	4/15/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	4/15/05	4/15/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/15/05	4/15/05
CLP VOL	cis-1,2-Dichloroethene	Not detected	0.5	0.16	ug/L	4/15/05	4/15/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/15/05	4/15/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/15/05	4/15/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	Methylene Chloride	0.54	0.5	0.35	ug/L	4/15/05	4/15/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/15/05	4/15/05

Run #: 0415N21  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:23 13 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-551

Sample Collection Date: 4/15/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47163

APPL ID: AX17823

QCG: \$C42VT-050415BN-85797

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	Not detected	0.5	0.15	ug/L	4/15/05	4/15/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/15/05	4/15/05
CLP VOL	trans-1,2-Dichloroethene	Not detected	0.5	0.19	ug/L	4/15/05	4/15/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/15/05	4/15/05
CLP VOL	Trichloroethene	Not detected	0.5	0.16	ug/L	4/15/05	4/15/05
CLP VOL	Vinyl Chloride	Not detected	0.5	0.23	ug/L	4/15/05	4/15/05
CLP VOL	Surrogate Recovery (BFB)	110	75-125		%	4/15/05	4/15/05
CLP VOL	Surrogate Recovery (DCA)	111	62-139		%	4/15/05	4/15/05
CLP VOL	Surrogate Recovery (TOL)	108	75-125		%	4/15/05	4/15/05

Run #: 0415N21  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:23 14 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47163

Sample ID: 86-WOPT-552

APPL ID: AX17824

Sample Collection Date: 4/15/05

CCG: \$C42VT-050415BN-85797

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	1.9	0.5	0.14	ug/L	4/16/05	4/16/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/16/05	4/16/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	25	0.5	0.21	ug/L	4/16/05	4/16/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/16/05	4/16/05
CLP VOL	1,1-Dichloroethane	12	0.5	0.19	ug/L	4/16/05	4/16/05
CLP VOL	1,1-Dichloroethene	23	0.5	0.30	ug/L	4/16/05	4/16/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/16/05	4/16/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/16/05	4/16/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/16/05	4/16/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/16/05	4/16/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/16/05	4/16/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/16/05	4/16/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/16/05	4/16/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/16/05	4/16/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/16/05	4/16/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/16/05	4/16/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/16/05	4/16/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/16/05	4/16/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/16/05	4/16/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/16/05	4/16/05
CLP VOL	Chloroform	0.48 J	0.5	0.16	ug/L	4/16/05	4/16/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/16/05	4/16/05
CLP VOL	cis-1,2-Dichloroethene	280 E	0.5	0.16	ug/L	4/16/05	4/16/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/16/05	4/16/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/16/05	4/16/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/16/05	4/16/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/16/05	4/16/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/16/05	4/16/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/16/05	4/16/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/16/05	4/16/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/16/05	4/16/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0415N23  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed 4/25/05 5:23:14 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1930 086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-552

Sample Collection Date: 4/15/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47163

APPL ID: AX17824

QCG: SC42VT-050415BN-85797

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	17	0.5	0.15	ug/L	4/16/05	4/16/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/16/05	4/16/05
CLP VOL	trans-1,2-Dichloroethene	2.9	0.5	0.19	ug/L	4/16/05	4/16/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/16/05	4/16/05
CLP VOL	Trichloroethene	1200 E	0.5	0.16	ug/L	4/16/05	4/16/05
CLP VOL	Vinyl Chloride	2.0	0.5	0.23	ug/L	4/16/05	4/16/05
CLP VOL	Surrogate Recovery (BFB)	104	75-125		%	4/16/05	4/16/05
CLP VOL	Surrogate Recovery (DCA)	117	62-139		%	4/16/05	4/16/05
CLP VOL	Surrogate Recovery (TOL)	97.1	75-125		%	4/16/05	4/16/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0415N23  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:23:14 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-552

Sample Collection Date: 4/15/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47163

APPL ID: AX17324

QCG: SC42VD-050417BN-85884

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	210	25	8.00	ug/L	4/18/05	4/18/05
CLP VOL	Trichloroethene	1100	25	8.00	ug/L	4/18/05	4/18/05
CLP VOL	Surrogate Recovery (BFB)	96.0	75-125		%	4/18/05	4/18/05
CLP VOL	Surrogate Recovery (DCA)	106	62-139		%	4/18/05	4/18/05
CLP VOL	Surrogate Recovery (TOL)	106	75-125		%	4/18/05	4/18/05

Run #: 0417N32  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 50  
Initials: LF

Printed: 5/5/05 11:19:56 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47163

Sample ID: 86-WOPT-553

APPL ID: AX17825

Sample Collection Date: 4/15/05

QCG: SC42VT-050415BN-85797

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	1.6	0.5	0.14	ug/L	4/16/05	4/16/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/16/05	4/16/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	39	0.5	0.21	ug/L	4/16/05	4/16/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/16/05	4/16/05
CLP VOL	1,1-Dichloroethane	12	0.5	0.19	ug/L	4/16/05	4/16/05
CLP VOL	1,1-Dichloroethene	26	0.5	0.30	ug/L	4/16/05	4/16/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/16/05	4/16/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/16/05	4/16/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/16/05	4/16/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/16/05	4/16/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/16/05	4/16/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/16/05	4/16/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/16/05	4/16/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/16/05	4/16/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/16/05	4/16/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/16/05	4/16/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/16/05	4/16/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/16/05	4/16/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/16/05	4/16/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/16/05	4/16/05
CLP VOL	Chloroform	0.46 J	0.5	0.16	ug/L	4/16/05	4/16/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/16/05	4/16/05
CLP VOL	cis-1,2-Dichloroethane	260 E	0.5	0.16	ug/L	4/16/05	4/16/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/16/05	4/16/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/16/05	4/16/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/16/05	4/16/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/16/05	4/16/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/16/05	4/16/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/16/05	4/16/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/16/05	4/16/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/16/05	4/16/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0415N24  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:23:14 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47163

Sample ID: 86-WOPT-553

APPL ID: AX17925

Sample Collection Date: 4/15/05

QCG: SC42VT-050415BN-85797

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	27	0.5	0.15	ug/L	4/16/05	4/16/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/16/05	4/16/05
CLP VOL	trans-1,2-Dichloroethene	2.0	0.5	0.19	ug/L	4/16/05	4/16/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/16/05	4/16/05
CLP VOL	Trichloroethene	1300 E	0.5	0.16	ug/L	4/16/05	4/16/05
CLP VOL	Vinyl Chloride	1.7	0.5	0.23	ug/L	4/16/05	4/16/05
CLP VOL	Surrogate Recovery (BFB)	110	75-125		%	4/16/05	4/16/05
CLP VOL	Surrogate Recovery (DCA)	110	62-139		%	4/16/05	4/16/05
CLP VOL	Surrogate Recovery (TOL)	108	75-125		%	4/16/05	4/16/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0415N24  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:23:14 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-553

Sample Collection Date: 4/15/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47163

APPL ID: AX17825

QCG: SC42VD-050417BN-85884

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	190	25	8.00	ug/L	4/18/05	4/18/05
CLP VOL	Trichloroethene	1500	25	8.00	ug/L	4/18/05	4/18/05
CLP VOL	Surrogate Recovery (BFB)	94.0	75-125		%	4/18/05	4/18/05
CLP VOL	Surrogate Recovery (DCA)	98.9	62-139		%	4/18/05	4/18/05
CLP VOL	Surrogate Recovery (TOL)	108	75-125		%	4/18/05	4/18/05

Run #: 0417N33  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 50  
Initials: LF

Printed 4/25/05 5:23:14 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-554

Sample Collection Date: 4/15/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47163

APPL ID: AX17826

QCG: SC42VT-050415BN-85797

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	1.5	0.5	0.14	ug/L	4/16/05	4/16/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/16/05	4/16/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	130 E	0.5	0.21	ug/L	4/16/05	4/16/05
CLP VOL	1,1,2-Trichloroethane	0.46 J	0.5	0.2	ug/L	4/16/05	4/16/05
CLP VOL	1,1-Dichloroethane	12	0.5	0.19	ug/L	4/16/05	4/16/05
CLP VOL	1,1-Dichloroethene	47	0.5	0.30	ug/L	4/16/05	4/16/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/16/05	4/16/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/16/05	4/16/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/16/05	4/16/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/16/05	4/16/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/16/05	4/16/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/16/05	4/16/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/16/05	4/16/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/16/05	4/16/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/16/05	4/16/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/16/05	4/16/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/16/05	4/16/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/16/05	4/16/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/16/05	4/16/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/16/05	4/16/05
CLP VOL	Chloroform	0.51	0.5	0.16	ug/L	4/16/05	4/16/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/16/05	4/16/05
CLP VOL	cis-1,2-Dichloroethene	200 E	0.5	0.16	ug/L	4/16/05	4/16/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/16/05	4/16/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/16/05	4/16/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/16/05	4/16/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/16/05	4/16/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/16/05	4/16/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/16/05	4/16/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/16/05	4/16/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/16/05	4/16/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0415N25  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed 4/25/05 5:23:14 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.066D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-554

Sample Collection Date: 4/15/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47163

APPL ID: AX17826

OCG: \$C42VT-050415BN-85797

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	120 E	0.5	0.15	ug/L	4/16/05	4/16/05
CLP VOL	Toluene	0.24 J	0.5	0.17	ug/L	4/16/05	4/16/05
CLP VOL	trans-1,2-Dichloroethene	1.2	0.5	0.19	ug/L	4/16/05	4/16/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/16/05	4/16/05
CLP VOL	Trichloroethene	2100 E	0.5	0.16	ug/L	4/16/05	4/16/05
CLP VOL	Vinyl Chloride	0.47 J	0.5	0.23	ug/L	4/16/05	4/16/05
CLP VOL	Surrogate Recovery (BFB)	104	75-125		%	4/16/05	4/16/05
CLP VOL	Surrogate Recovery (DCA)	104	62-139		%	4/16/05	4/16/05
CLP VOL	Surrogate Recovery (TOL)	107	75-125		%	4/16/05	4/16/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0415N25  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:23:14 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-554**

Sample Collection Date: 4/15/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47163

**APPL ID: AX17826**

QCG: SC42VD-050417BN-85884

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	96	25	10.50	ug/L	4/18/05	4/18/05
CLP VOL	cis-1,2-Dichloroethene	150	25	8.00	ug/L	4/18/05	4/18/05
CLP VOL	Tetrachloroethene	76	25	7.50	ug/L	4/18/05	4/18/05
CLP VOL	Trichloroethene	3600	25	8.00	ug/L	4/18/05	4/18/05
CLP VOL	Surrogate Recovery (BFB)	97.8	75-125		%	4/18/05	4/18/05
CLP VOL	Surrogate Recovery (DCA)	104	62-139		%	4/18/05	4/18/05
CLP VOL	Surrogate Recovery (TOL)	106	75-125		%	4/18/05	4/18/05

Run #: 0417N34  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 50  
Initials: LF

Printed: 5/16/05 6:38:24 PM  
APPL-F1-SC-MCRes\MCPQL-REG MDLs



# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47163

Sample ID: 86-WOPT-555

APPL ID: AX17827

Sample Collection Date: 4/15/05

OCG: \$C42VT-050415BN-85797

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	1.6	0.5	0.14	ug/L	4/16/05	4/16/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/16/05	4/16/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	130 E	0.5	0.21	ug/L	4/16/05	4/16/05
CLP VOL	1,1,2-Trichloroethane	0.50	0.5	0.2	ug/L	4/16/05	4/16/05
CLP VOL	1,1-Dichloroethane	12	0.5	0.19	ug/L	4/16/05	4/16/05
CLP VOL	1,1-Dichloroethene	49	0.5	0.30	ug/L	4/16/05	4/16/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/16/05	4/16/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/16/05	4/16/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/16/05	4/16/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/16/05	4/16/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/16/05	4/16/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/16/05	4/16/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/16/05	4/16/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/16/05	4/16/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/16/05	4/16/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/16/05	4/16/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/16/05	4/16/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/16/05	4/16/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/16/05	4/16/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/16/05	4/16/05
CLP VOL	Chloroform	0.54	0.5	0.16	ug/L	4/16/05	4/16/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/16/05	4/16/05
CLP VOL	cis-1,2-Dichloroethene	210 E	0.5	0.16	ug/L	4/16/05	4/16/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/16/05	4/16/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/16/05	4/16/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/16/05	4/16/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/16/05	4/16/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/16/05	4/16/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/16/05	4/16/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/16/05	4/16/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/16/05	4/16/05

E = The reported value exceeds linear range.

Run #: 0415N26  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:23:14 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47163

Sample ID: 86-WOPT-555

APPL ID: AX17827

Sample Collection Date: 4/15/05

QCG: \$C42VT-050415BN-85797

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	130 E	0.5	0.15	ug/L	4/16/05	4/16/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/16/05	4/16/05
CLP VOL	trans-1,2-Dichloroethene	1.1	0.5	0.19	ug/L	4/16/05	4/16/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/16/05	4/16/05
CLP VOL	Trichloroethene	2100 E	0.5	0.16	ug/L	4/16/05	4/16/05
CLP VOL	Vinyl Chloride	0.53	0.5	0.23	ug/L	4/16/05	4/16/05
CLP VOL	Surrogate Recovery (BFB)	109	75-125		%	4/16/05	4/16/05
CLP VOL	Surrogate Recovery (DCA)	114	62-139		%	4/16/05	4/16/05
CLP VOL	Surrogate Recovery (TOL)	106	75-125		%	4/16/05	4/16/05

E = The reported value exceeds linear range.

Run #: 0415N26  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:23:14 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47163

Sample ID: 86-WOPT-555

APPL ID: AX17827

Sample Collection Date: 4/15/05

QCG: \$C42VD-050417BN-85884

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	89	25	10.50	ug/L	4/18/05	4/18/05
CLP VOL	cis-1,2-Dichloroethene	170	25	8.00	ug/L	4/18/05	4/18/05
CLP VOL	Tetrachloroethene	73	25	7.50	ug/L	4/18/05	4/18/05
CLP VOL	Trichloroethene	3600	25	8.00	ug/L	4/18/05	4/18/05
CLP VOL	Surrogate Recovery (BFB)	103	75-125		%	4/18/05	4/18/05
CLP VOL	Surrogate Recovery (DCA)	108	62-139		%	4/18/05	4/18/05
CLP VOL	Surrogate Recovery (TOL)	110	75-125		%	4/18/05	4/18/05

Run #: 0417N35  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 50  
Initials: LF

Printed 5/16/05 6:47:03 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47163

Sample ID: 86-WOPT-556

APPL ID: AX17&28

Sample Collection Date: 4/15/05

QCG: \$86TTS-050415BC-85799

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 20.8 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	1.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.6	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.61	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1-Dichloroethane	3.3 J	6	1.4	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,1-Dichloroethene	7.6	6	1.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.91	ug/Kg	4/15/05	4/15/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.78	ug/Kg	4/15/05	4/15/05
EPA 8260B	2-Butanone	Not detected	63	0.90	ug/Kg	4/15/05	4/15/05
EPA 8260B	2-Hexanone	Not detected	63	0.20	ug/Kg	4/15/05	4/15/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	63	1.2	ug/Kg	4/15/05	4/15/05
EPA 8260B	Acetone	Not detected	130	3.5	ug/Kg	4/15/05	4/15/05
EPA 8260B	Benzene	Not detected	6	0.80	ug/Kg	4/15/05	4/15/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.87	ug/Kg	4/15/05	4/15/05
EPA 8260B	Bromoform	Not detected	6	1.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	Bromomethane	Not detected	13	2.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	Carbon disulfide	Not detected	6	1.4	ug/Kg	4/15/05	4/15/05
EPA 8260B	Carbon tetrachloride	Not detected	6	1.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chlorobenzene	Not detected	6	0.62	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chloroethane	Not detected	6	2.0	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	4/15/05	4/15/05
EPA 8260B	Chloromethane	Not detected	6	2.3	ug/Kg	4/15/05	4/15/05
EPA 8260B	cis-1,2-Dichloroethene	87	6	1.4	ug/Kg	4/15/05	4/15/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.59	ug/Kg	4/15/05	4/15/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.1	ug/Kg	4/15/05	4/15/05
EPA 8260B	Ethylbenzene	Not detected	6	0.81	ug/Kg	4/15/05	4/15/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/15/05	4/15/05
EPA 8260B	Methylene chloride	Not detected	63	5.8	ug/Kg	4/15/05	4/15/05
EPA 8260B	Styrene	Not detected	6	0.87	ug/Kg	4/15/05	4/15/05
EPA 8260B	Tetrachloroethene	45	6	0.68	ug/Kg	4/15/05	4/15/05
EPA 8260B	Toluene	Not detected	6	0.82	ug/Kg	4/15/05	4/15/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.7	ug/Kg	4/15/05	4/15/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0415C26  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:23:14 PM  
APPL-F1-SC-MCRs/MCPQL-REG MDLs

## EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Blenkowski

Project: 1990.086D WATS Bldg 83 Moffett Airfield

ARF: 47163

Sample ID: 86-WOPT-556

APPL ID: AX17828

Sample Collection Date: 4/15/05

QCG: S86TTS-050415BC-85798

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.54	ug/Kg	4/15/05	4/15/05
EPA 8260B	Trichloroethene	1200 E	6	0.90	ug/Kg	4/15/05	4/15/05
EPA 8260B	Vinyl Acetate	Not detected	63	1.3	ug/Kg	4/15/05	4/15/05
EPA 8260B	Vinyl chloride	Not detected	6	2.1	ug/Kg	4/15/05	4/15/05
EPA 8260B	Xylenes	Not detected	19	0.86	ug/Kg	4/15/05	4/15/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	105	52-149		%	4/15/05	4/15/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	89.8	65-135		%	4/15/05	4/15/05
EPA 8260B	Surrogate recovery: Toluene-d8	98.1	65-135		%	4/15/05	4/15/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

Run #: 0415C26  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:23:15 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Blenkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47163

**Sample ID: 86-WOPT-556**

**APPL ID: AX17828**

Sample Collection Date: 4/15/05

QCQ: \$86TTD-050417BM-86216

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 20.8 Percent Moisture.)							
EPA 8260B-	1,1,2,2-Tetrachloroethane	Not detected	32	17	ug/Kg	4/18/05	4/18/05
EPA 8260B-	4-Methyl-2-pentanone	Not detected	320	120	ug/Kg	4/18/05	4/18/05
EPA 8260B-	Trichloroethene	1900	32	10	ug/Kg	4/18/05	4/18/05
EPA 8260B-	Surrogate recovery: 1,2-Dichloroethane	106	52-149		%	4/18/05	4/18/05
EPA 8260B-	Surrogate recovery: 4-Bromofluorobenz	92.5	65-135		%	4/18/05	4/18/05
EPA 8260B-	Surrogate recovery: Toluene-d8	99.3	65-135		%	4/18/05	4/18/05

Run #: 0417M37  
Instrument: Max  
Sequence: M050414  
Dilution Factor: 50  
Initials: LF

Printed: 5/17/05 12:24:15 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-557

Sample Collection Date: 4/15/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47163

APPL ID: AX17829

QCG: S86TTS-050415BC-85798

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 17.0 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	0.98	ug/Kg	4/16/05	4/16/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.5	ug/Kg	4/16/05	4/16/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.58	ug/Kg	4/16/05	4/16/05
EPA 8260B	1,1-Dichloroethane	1.8 J	6	1.4	ug/Kg	4/16/05	4/16/05
EPA 8260B	1,1-Dichloroethene	4.1 J	6	0.95	ug/Kg	4/16/05	4/16/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.87	ug/Kg	4/16/05	4/16/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.75	ug/Kg	4/16/05	4/16/05
EPA 8260B	2-Butanone	Not detected	60	0.86	ug/Kg	4/16/05	4/16/05
EPA 8260B	2-Hexanone	Not detected	60	0.19	ug/Kg	4/16/05	4/16/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	60	1.1	ug/Kg	4/16/05	4/16/05
EPA 8260B	Acetone	Not detected	120	3.4	ug/Kg	4/16/05	4/16/05
EPA 8260B	Benzene	Not detected	6	0.76	ug/Kg	4/16/05	4/16/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.83	ug/Kg	4/16/05	4/16/05
EPA 8260B	Bromoform	Not detected	6	0.96	ug/Kg	4/16/05	4/16/05
EPA 8260B	Bromomethane	Not detected	12	1.9	ug/Kg	4/16/05	4/16/05
EPA 8260B	Carbon disulfide	Not detected	6	1.3	ug/Kg	4/16/05	4/16/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.96	ug/Kg	4/16/05	4/16/05
EPA 8260B	Chlorobenzene	Not detected	6	0.59	ug/Kg	4/16/05	4/16/05
EPA 8260B	Chloroethane	Not detected	6	1.9	ug/Kg	4/16/05	4/16/05
EPA 8260B	Chloroform	Not detected	6	1.7	ug/Kg	4/16/05	4/16/05
EPA 8260B	Chloromethane	Not detected	6	2.2	ug/Kg	4/16/05	4/16/05
EPA 8260B	cis-1,2-Dichloroethene	46	6	1.3	ug/Kg	4/16/05	4/16/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.57	ug/Kg	4/16/05	4/16/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.0	ug/Kg	4/16/05	4/16/05
EPA 8260B	Ethylbenzene	Not detected	6	0.77	ug/Kg	4/16/05	4/16/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/16/05	4/16/05
EPA 8260B	Methylene chloride	Not detected	60	5.5	ug/Kg	4/16/05	4/16/05
EPA 8260B	Styrene	Not detected	6	0.83	ug/Kg	4/16/05	4/16/05
EPA 8260B	Tetrachloroethene	9.7	6	0.65	ug/Kg	4/16/05	4/16/05
EPA 8260B	Toluene	Not detected	6	0.78	ug/Kg	4/16/05	4/16/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.6	ug/Kg	4/16/05	4/16/05

J = Estimated value, below quantitation limit.

Run #: 0415C27  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:23:15 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-557**

Sample Collection Date: 4/15/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47163

**APPL ID: AX17829**

QCG: \$86TTS-050415BC-85798

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.52	ug/Kg	4/16/05	4/16/05
EPA 8260B	Trichloroethene	490	6	0.86	ug/Kg	4/16/05	4/16/05
EPA 8260B	Vinyl Acetate	Not detected	60	1.2	ug/Kg	4/16/05	4/16/05
EPA 8260B	Vinyl chloride	Not detected	6	2.0	ug/Kg	4/16/05	4/16/05
EPA 8260B	Xylenes	Not detected	18	0.82	ug/Kg	4/16/05	4/16/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	99.5	52-149		%	4/16/05	4/16/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	93.4	65-135		%	4/16/05	4/16/05
EPA 8260B	Surrogate recovery: Toluene-d8	97.3	65-135		%	4/16/05	4/16/05

J = Estimated value, below quantitation limit.

Run #: 0415C27  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:23:15 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47163

Sample ID: 86-WOPT-558

APPL ID: AX17830

Sample Collection Date: 4/15/05

CCG: S86TTS-050415BC-85798

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 14.2 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	0.94	ug/Kg	4/16/05	4/16/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.4	ug/Kg	4/16/05	4/16/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.56	ug/Kg	4/16/05	4/16/05
EPA 8260B	1,1-Dichloroethane	Not detected	6	1.3	ug/Kg	4/16/05	4/16/05
EPA 8260B	1,1-Dichloroethene	2.6 J	6	0.92	ug/Kg	4/16/05	4/16/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.84	ug/Kg	4/16/05	4/16/05
EPA 8260B	1,2-Dichloropropene	Not detected	6	0.72	ug/Kg	4/16/05	4/16/05
EPA 8260B	2-Butanone	Not detected	58	0.83	ug/Kg	4/16/05	4/16/05
EPA 8260B	2-Hexanone	Not detected	58	0.19	ug/Kg	4/16/05	4/16/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	58	1.1	ug/Kg	4/16/05	4/16/05
EPA 8260B	Acetone	Not detected	120	3.3	ug/Kg	4/16/05	4/16/05
EPA 8260B	Benzene	Not detected	6	0.73	ug/Kg	4/16/05	4/16/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.80	ug/Kg	4/16/05	4/16/05
EPA 8260B	Bromoform	Not detected	6	0.93	ug/Kg	4/16/05	4/16/05
EPA 8260B	Bromomethane	Not detected	12	1.9	ug/Kg	4/16/05	4/16/05
EPA 8260B	Carbon disulfide	Not detected	6	1.3	ug/Kg	4/16/05	4/16/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.93	ug/Kg	4/16/05	4/16/05
EPA 8260B	Chlorobenzene	Not detected	6	0.57	ug/Kg	4/16/05	4/16/05
EPA 8260B	Chloroethane	Not detected	6	1.8	ug/Kg	4/16/05	4/16/05
EPA 8260B	Chloroform	Not detected	6	1.7	ug/Kg	4/16/05	4/16/05
EPA 8260B	Chloromethane	Not detected	6	2.1	ug/Kg	4/16/05	4/16/05
EPA 8260B	cis-1,2-Dichloroethene	27	6	1.2	ug/Kg	4/16/05	4/16/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.55	ug/Kg	4/16/05	4/16/05
EPA 8260B	Dibromochloromethane	Not detected	6	0.99	ug/Kg	4/16/05	4/16/05
EPA 8260B	Ethylbenzene	Not detected	6	0.75	ug/Kg	4/16/05	4/16/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.0	ug/Kg	4/16/05	4/16/05
EPA 8260B	Methylene chloride	Not detected	58	5.3	ug/Kg	4/16/05	4/16/05
EPA 8260B	Styrene	Not detected	6	0.80	ug/Kg	4/16/05	4/16/05
EPA 8260B	Tetrachloroethene	3.8 J	6	0.63	ug/Kg	4/16/05	4/16/05
EPA 8260B	Toluene	Not detected	6	0.76	ug/Kg	4/16/05	4/16/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.6	ug/Kg	4/16/05	4/16/05

J = Estimated value, below quantitation limit.

Run #: 0415C28  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:23:15 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-558

Sample Collection Date: 4/15/05

ARF: 47163

APPL ID: AX17830

QC# 86TTS-050415BC-85798

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.50	ug/Kg	4/16/05	4/16/05
EPA 8260B	Trichloroethene	290	6	0.83	ug/Kg	4/16/05	4/16/05
EPA 8260B	Vinyl Acetate	Not detected	58	1.2	ug/Kg	4/16/05	4/16/05
EPA 8260B	Vinyl chloride	Not detected	6	2.0	ug/Kg	4/16/05	4/16/05
EPA 8260B	Xylenes	Not detected	17	0.79	ug/Kg	4/16/05	4/16/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	109	52-149		%	4/16/05	4/16/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	103	65-135		%	4/16/05	4/16/05
EPA 8260B	Surrogate recovery: Toluene-d8	98.3	65-135		%	4/16/05	4/16/05

J = Estimated value, below quantitation limit.

Run #: 0415C28  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:23:15 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-559

Sample Collection Date: 4/15/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47163

APPL ID: AX17831

QCG: \$86TTS-05C415BC-85798

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 17.9 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	0.99	ug/Kg	4/16/05	4/16/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.5	ug/Kg	4/16/05	4/16/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.58	ug/Kg	4/16/05	4/16/05
EPA 8260B	1,1-Dichloroethane	2.0 J	6	1.4	ug/Kg	4/16/05	4/16/05
EPA 8260B	1,1-Dichloroethene	8.2	6	0.96	ug/Kg	4/16/05	4/16/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.88	ug/Kg	4/16/05	4/16/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.76	ug/Kg	4/16/05	4/16/05
EPA 8260B	2-Butanone	Not detected	61	0.86	ug/Kg	4/16/05	4/16/05
EPA 8260B	2-Hexanone	Not detected	61	0.19	ug/Kg	4/16/05	4/16/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	61	1.1	ug/Kg	4/16/05	4/16/05
EPA 8260B	Acetone	Not detected	120	3.4	ug/Kg	4/16/05	4/16/05
EPA 8260B	Benzene	Not detected	6	0.77	ug/Kg	4/16/05	4/16/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.84	ug/Kg	4/16/05	4/16/05
EPA 8260B	Bromoform	Not detected	6	0.97	ug/Kg	4/16/05	4/16/05
EPA 8260B	Bromomethane	Not detected	12	2.0	ug/Kg	4/16/05	4/16/05
EPA 8260B	Carbon disulfide	Not detected	6	1.3	ug/Kg	4/16/05	4/16/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.97	ug/Kg	4/16/05	4/16/05
EPA 8260B	Chlorobenzene	Not detected	6	0.60	ug/Kg	4/16/05	4/16/05
EPA 8260B	Chloroethane	Not detected	6	1.9	ug/Kg	4/16/05	4/16/05
EPA 8260B	Chloroform	Not detected	6	1.7	ug/Kg	4/16/05	4/16/05
EPA 8260B	Chloromethane	Not detected	6	2.2	ug/Kg	4/16/05	4/16/05
EPA 8260B	cis-1,2-Dichloroethene	37	6	1.3	ug/Kg	4/16/05	4/16/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.57	ug/Kg	4/16/05	4/16/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.0	ug/Kg	4/16/05	4/16/05
EPA 8260B	Ethylbenzene	Not detected	6	0.78	ug/Kg	4/16/05	4/16/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/16/05	4/16/05
EPA 8260B	Methylene chloride	Not detected	61	5.6	ug/Kg	4/16/05	4/16/05
EPA 8260B	Styrene	Not detected	6	0.84	ug/Kg	4/16/05	4/16/05
EPA 8260B	Tetrachloroethene	27	6	0.66	ug/Kg	4/16/05	4/16/05
EPA 8260B	Toluene	Not detected	6	0.79	ug/Kg	4/16/05	4/16/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.6	ug/Kg	4/16/05	4/16/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0415C29  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed 4/25/05 5:23:15 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47163

Sample ID: 86-WOPT-559

APPL ID: AX17831

Sample Collection Date: 4/15/05

QCG: \$86TTS-050415BC-85798

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.52	ug/Kg	4/16/05	4/16/05
EPA 8260B	Trichloroethene	1200 E	6	0.86	ug/Kg	4/16/05	4/16/05
EPA 8260B	Vinyl Acetate	Not detected	61	1.2	ug/Kg	4/16/05	4/16/05
EPA 8260B	Vinyl chloride	Not detected	6	2.0	ug/Kg	4/16/05	4/16/05
EPA 8260B	Xylenes	Not detected	18	0.83	ug/Kg	4/16/05	4/16/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	107	52-149		%	4/16/05	4/16/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	97.3	65-135		%	4/16/05	4/16/05
EPA 8260B	Surrogate recovery: Toluene-d8	100	65-135		%	4/16/05	4/16/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0415C29  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:23:15 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Blenkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-559

Sample Collection Date: 4/15/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47163

APPL ID: AX17831

QCG: \$86TTD-050417BM-86216

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 17.9 Percent Moisture.)							
EPA 8260B-	Trichloroethene	1200	30	9.7	ug/Kg	4/18/05	4/18/05
EPA 8260B-	Surrogate recovery: 1,2-Dichloroethane	111	52-149		%	4/18/05	4/18/05
EPA 8260B-	Surrogate recovery: 4-Bromofluorobenz	92.9	65-135		%	4/18/05	4/18/05
EPA 8260B-	Surrogate recovery: Toluene-d8	98.4	65-135		%	4/18/05	4/18/05

Run #: 0417M38  
Instrument: Max  
Sequence: M050414  
Dilution Factor: 50  
Initials: LF

Printed: 4/28/05 5:55:58 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deane Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowsk

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-560

Sample Collection Date: 4/15/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47163

APPL ID: AX17832

QCG: \$86TTW-050418AS-85817

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/18/05	4/18/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/18/05	4/18/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/18/05	4/18/05
EPA 8260B	1,1-Dichloroethane	Not detected	0.5	0.19	ug/L	4/18/05	4/18/05
EPA 8260B	1,1-Dichloroethene	Not detected	0.5	0.30	ug/L	4/18/05	4/18/05
EPA 8260B	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/18/05	4/18/05
EPA 8260B	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/18/05	4/18/05
EPA 8260B	2-Butanone	Not detected	5	0.6	ug/L	4/18/05	4/18/05
EPA 8260B	2-Hexanone	Not detected	5	0.92	ug/L	4/18/05	4/18/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/18/05	4/18/05
EPA 8260B	Acetone	Not detected	5	0.95	ug/L	4/18/05	4/18/05
EPA 8260B	Benzene	Not detected	0.5	0.16	ug/L	4/18/05	4/18/05
EPA 8260B	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/18/05	4/18/05
EPA 8260B	Bromoform	Not detected	0.5	0.14	ug/L	4/18/05	4/18/05
EPA 8260B	Bromomethane	Not detected	1	0.24	ug/L	4/18/05	4/18/05
EPA 8260B	Carbon disulfide	Not detected	0.5	0.2	ug/L	4/18/05	4/18/05
EPA 8260B	Carbon tetrachloride	Not detected	0.5	0.10	ug/L	4/18/05	4/18/05
EPA 8260B	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/18/05	4/18/05
EPA 8260B	Chloroethane	Not detected	0.5	0.21	ug/L	4/18/05	4/18/05
EPA 8260B	Chloroform	Not detected	0.5	0.16	ug/L	4/18/05	4/18/05
EPA 8260B	Chloromethane	Not detected	0.5	0.31	ug/L	4/18/05	4/18/05
EPA 8260B	cis-1,2-Dichloroethene	Not detected	0.5	0.16	ug/L	4/18/05	4/18/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/18/05	4/18/05
EPA 8260B	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/18/05	4/18/05
EPA 8260B	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/18/05	4/18/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/18/05	4/18/05
EPA 8260B	Methylene chloride	Not detected	5	0.35	ug/L	4/18/05	4/18/05
EPA 8260B	Styrene	Not detected	0.5	0.25	ug/L	4/18/05	4/18/05
EPA 8260B	Tetrachloroethene	Not detected	0.5	0.15	ug/L	4/18/05	4/18/05
EPA 8260B	Toluene	Not detected	0.5	0.17	ug/L	4/18/05	4/18/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	0.5	0.19	ug/L	4/18/05	4/18/05

Run #: 0418S06  
Instrument: Sweetpea  
Sequence: S050414  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:23:15 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski  
Project: 199C.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-560

Sample Collection Date: 4/15/05

ARF: 47163

APPL ID: AX17832

QCG: \$86TTW-050418AS-85817

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/18/05	4/18/05
EPA 8260B	Trichloroethene	Not detected	0.5	0.16	ug/L	4/18/05	4/18/05
EPA 8260B	Vinyl Acetate	Not detected	5	0.31	ug/L	4/18/05	4/18/05
EPA 8260B	Vinyl chloride	Not detected	0.5	0.23	ug/L	4/18/05	4/18/05
EPA 8260B	Xylenes	Not detected	1.5	0.19	ug/L	4/18/05	4/18/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	107	62-139		%	4/18/05	4/18/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	104	75-125		%	4/18/05	4/18/05
EPA 8260B	Surrogate recovery: Toluene-d8	94.7	75-125		%	4/18/05	4/18/05

Run #: 0418S06  
Instrument: Sweetpea  
Sequence: S050414  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:23:15 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47163

Sample ID: 86-WOPT-1053

APPL ID: AX17833

Sample Collection Date: 4/15/05

QCQ: SC42VT-050415BN-85797

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VCL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/16/05	4/16/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/16/05	4/16/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	0.5	0.21	ug/L	4/16/05	4/16/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/16/05	4/16/05
CLP VOL	1,1-Dichloroethane	Not detected	0.5	0.19	ug/L	4/16/05	4/16/05
CLP VOL	1,1-Dichloroethene	Not detected	0.5	0.30	ug/L	4/16/05	4/16/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/16/05	4/16/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/16/05	4/16/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/16/05	4/16/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/16/05	4/16/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/16/05	4/16/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/16/05	4/16/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/16/05	4/16/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/16/05	4/16/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/16/05	4/16/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/16/05	4/16/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/16/05	4/16/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/16/05	4/16/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/16/05	4/16/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/16/05	4/16/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	4/16/05	4/16/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/16/05	4/16/05
CLP VOL	cis-1,2-Dichloroethene	Not detected	0.5	0.16	ug/L	4/16/05	4/16/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/16/05	4/16/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/16/05	4/16/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/16/05	4/16/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/16/05	4/16/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/16/05	4/16/05
CLP VOL	Methylene Chloride	0.44 J	0.5	0.35	ug/L	4/16/05	4/16/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/16/05	4/16/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/16/05	4/16/05

J = Estimated value, below quantitation limit.

Run #: 0415N22  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed 4/25/05 5:23:15 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



## CLP Volatiles Water

Tetra Tech F.W., Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1053

Sample Collection Date: 4/15/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47163

APPL ID: AX17833

QCG: \$C42VT-050415BN-85797

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	Not detected	0.5	0.15	ug/L	4/16/05	4/16/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/16/05	4/16/05
CLP VOL	trans-1,2-Dichloroethene	Not detected	0.5	0.19	ug/L	4/16/05	4/16/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/16/05	4/16/05
CLP VOL	Trichloroethene	Not detected	0.5	0.16	ug/L	4/16/05	4/16/05
CLP VOL	Vinyl Chloride	Not detected	0.5	0.23	ug/L	4/16/05	4/16/05
CLP VOL	Surrogate Recovery (BFB)	106	75-125		%	4/16/05	4/16/05
CLP VOL	Surrogate Recovery (DCA)	108	62-139		%	4/16/05	4/16/05
CLP VOL	Surrogate Recovery (TOL)	106	75-125		%	4/16/05	4/16/05

J = Estimated value, below quantitation limit.

Run #: 0415N22  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:23:15 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47163

Sample ID: 86-WOPT-1054

APPL ID: AX17834

Sample Collection Date: 4/15/05

QCQ: SC42VT-050415BN-85797

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	1.3	0.5	0.14	ug/L	4/16/05	4/16/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/16/05	4/16/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	4.5	0.5	0.21	ug/L	4/16/05	4/16/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/16/05	4/16/05
CLP VOL	1,1-Dichloroethane	13	0.5	0.19	ug/L	4/16/05	4/16/05
CLP VOL	1,1-Dichloroethene	12	0.5	0.30	ug/L	4/16/05	4/16/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/16/05	4/16/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/16/05	4/16/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/16/05	4/16/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/16/05	4/16/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/16/05	4/16/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/16/05	4/16/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/16/05	4/16/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/16/05	4/16/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/16/05	4/16/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/16/05	4/16/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/16/05	4/16/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/16/05	4/16/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/16/05	4/16/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/16/05	4/16/05
CLP VOL	Chloroform	1.2	0.5	0.16	ug/L	4/16/05	4/16/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/16/05	4/16/05
CLP VOL	cis-1,2-Dichloroethene	320 E	0.5	0.16	ug/L	4/16/05	4/16/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/16/05	4/16/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/16/05	4/16/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/16/05	4/16/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/16/05	4/16/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/16/05	4/16/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/16/05	4/16/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/16/05	4/16/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/16/05	4/16/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0415N27  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed 4/25/05 5:23:15 PM  
APPL-F1-SC MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1054

Sample Collection Date: 4/15/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47163

APPL ID: AX17834

QCG: SC42VT-050415BN-85797

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	3.5	0.5	0.15	ug/L	4/16/05	4/16/05
CLP VOL	Toluene	0.17 J	0.5	0.17	ug/L	4/16/05	4/16/05
CLP VOL	trans-1,2-Dichloroethene	6.3	0.5	0.19	ug/L	4/16/05	4/16/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/16/05	4/16/05
CLP VOL	Trichloroethene	710 E	0.5	0.16	ug/L	4/16/05	4/16/05
CLP VOL	Vinyl Chloride	Not detected	0.5	0.23	ug/L	4/16/05	4/16/05
CLP VOL	Surrogate Recovery (BFB)	106	75-125		%	4/16/05	4/16/05
CLP VOL	Surrogate Recovery (DCA)	110	62-139		%	4/16/05	4/16/05
CLP VOL	Surrogate Recovery (TOL)	108	75-125		%	4/16/05	4/16/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0415N27  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:23:15 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 36-WOPT-1054**

Sample Collection Date: 4/15/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47163

**APPL ID: AX17834**

QCG: SC42VD-050417BN-85884

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	250	12.5	4.00	ug/L	4/18/05	4/18/05
CLP VOL	Trichloroethene	620	12.5	4.00	ug/L	4/18/05	4/18/05
CLP VOL	Surrogate Recovery (BFB)	96.4	75-125		%	4/18/05	4/18/05
CLP VOL	Surrogate Recovery (DCA)	96.6	62-139		%	4/18/05	4/18/05
CLP VOL	Surrogate Recovery (TOL)	112	75-125		%	4/18/05	4/18/05

Run #: 0417N36  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 25  
Initials: LF

Printed: 4/25/05 5:23:15 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47163

Sample ID: 86-WOPT-1055

APPL ID: AX17835

Sample Collection Date: 4/15/05

QCG: \$C42VT-050415BN-85797

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/16/05	4/16/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/16/05	4/16/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	1.9	0.5	0.21	ug/L	4/16/05	4/16/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/16/05	4/16/05
CLP VOL	1,1-Dichloroethane	19	0.5	0.19	ug/L	4/16/05	4/16/05
CLP VOL	1,1-Dichloroethene	26	0.5	0.30	ug/L	4/16/05	4/16/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/16/05	4/16/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/16/05	4/16/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/16/05	4/16/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/16/05	4/16/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/16/05	4/16/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/16/05	4/16/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/16/05	4/16/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/16/05	4/16/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/16/05	4/16/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/16/05	4/16/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/16/05	4/16/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/16/05	4/16/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/16/05	4/16/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/16/05	4/16/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	4/16/05	4/16/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/16/05	4/16/05
CLP VOL	cis-1,2-Dichloroethene	1100 E	0.5	0.16	ug/L	4/16/05	4/16/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/16/05	4/16/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/16/05	4/16/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/16/05	4/16/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/16/05	4/16/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/16/05	4/16/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/16/05	4/16/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/16/05	4/16/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/16/05	4/16/05

E = The reported value exceeds linear range.

Run #: 0415N28  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:23:15 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1055

Sample Collection Date: 4/15/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47163

APPL ID: AX17835

QCG: SC42VT-050415BN-85797

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	7.3	0.5	0.15	ug/L	4/16/05	4/16/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/16/05	4/16/05
CLP VOL	trans-1,2-Dichloroethene	6.6	0.5	0.19	ug/L	4/16/05	4/16/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/16/05	4/16/05
CLP VOL	Trichloroethene	54	0.5	0.16	ug/L	4/16/05	4/16/05
CLP VOL	Vinyl Chloride	Not detected	0.5	0.23	ug/L	4/16/05	4/16/05
CLP VOL	Surrogate Recovery (BFB)	106	75-125		%	4/16/05	4/16/05
CLP VOL	Surrogate Recovery (DCA)	113	62-139		%	4/16/05	4/16/05
CLP VOL	Surrogate Recovery (TOL)	104	75-125		%	4/16/05	4/16/05

E = The reported value exceeds linear range.

Run #: 0415N28  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed 4/25/05 5:23:15 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1055

Sample Collection Date: 4/15/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47163

APPL ID: AX17835

QCG: SC42VD-050417BN-85884

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	1000	25	8.00	ug/L	4/18/05	4/18/05
CLP VOL	Surrogate Recovery (BFB)	99.4	75-125		%	4/18/05	4/18/05
CLP VOL	Surrogate Recovery (DCA)	104	62-139		%	4/18/05	4/18/05
CLP VOL	Surrogate Recovery (TOL)	112	75-125		%	4/18/05	4/18/05

Run #: 0417N37  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 50  
Initials: LF

Printed 4/25/05 5:23:15 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1056

Sample Collection Date: 4/15/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47163

APPL ID: AX17836

QCQ: SC42VT-050415BN-85797

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/16/05	4/16/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/16/05	4/16/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	1.7	0.5	0.21	ug/L	4/16/05	4/16/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/16/05	4/16/05
CLP VOL	1,1-Dichloroethane	18	0.5	0.19	ug/L	4/16/05	4/16/05
CLP VOL	1,1-Dichloroethene	24	0.5	0.30	ug/L	4/16/05	4/16/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/16/05	4/16/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/16/05	4/16/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/16/05	4/16/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/16/05	4/16/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/16/05	4/16/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/16/05	4/16/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/16/05	4/16/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/16/05	4/16/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/16/05	4/16/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/16/05	4/16/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/16/05	4/16/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/16/05	4/16/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/16/05	4/16/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/16/05	4/16/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	4/16/05	4/16/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/16/05	4/16/05
CLP VOL	cis-1,2-Dichloroethane	1100 E	0.5	0.16	ug/L	4/16/05	4/16/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/16/05	4/16/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/16/05	4/16/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/16/05	4/16/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/16/05	4/16/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/16/05	4/16/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/16/05	4/16/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/16/05	4/16/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/16/05	4/16/05

E = The reported value exceeds linear range.

Run #: 0415N29  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:23:15 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1056

Sample Collection Date: 4/15/05

ARF: 47163

APPL ID: AX17836

QCG: SC42VT-050415BN-85797

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	6.7	0.5	0.15	ug/L	4/16/05	4/16/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/16/05	4/16/05
CLP VOL	trans-1,2-Dichloroethene	5.9	0.5	0.19	ug/L	4/16/05	4/16/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/16/05	4/16/05
CLP VOL	Trichloroethene	51	0.5	0.16	ug/L	4/16/05	4/16/05
CLP VOL	Vinyl Chloride	0.78	0.5	0.23	ug/L	4/16/05	4/16/05
CLP VOL	Surrogate Recovery (BFB)	106	75-125		%	4/16/05	4/16/05
CLP VOL	Surrogate Recovery (DCA)	112	62-139		%	4/16/05	4/16/05
CLP VOL	Surrogate Recovery (TOL)	100	75-125		%	4/16/05	4/16/05

E = The reported value exceeds linear range.

Run #: 0415N29  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed 4/25/05 5:23 15 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1056

Sample Collection Date: 4/15/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47163

APPL ID: AX17836

QCG: SC42VD-050418BN-86875

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	910	25	8.00	ug/L	4/19/05	4/19/05
CLP VOL	Surrogate Recovery (BFB)	102	75-125		%	4/19/05	4/19/05
CLP VOL	Surrogate Recovery (DGA)	119	62-139		%	4/19/05	4/19/05
CLP VOL	Surrogate Recovery (TOL)	106	75-125		%	4/19/05	4/19/05

Run #: 0418N27  
Instrument: Neo  
Sequence: N050418  
Dilution Factor: 50  
Initials: LF

Printed: 5/16/05 3:19:56 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Blenkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47183

Sample ID: 86-WOPT-1057

APPL ID: AX17837

Sample Collection Date: 4/15/05

QCG: SC42VT-050415BN-85797

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/16/05	4/16/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/16/05	4/16/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	0.46 J	0.5	0.21	ug/L	4/16/05	4/16/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/16/05	4/16/05
CLP VOL	1,1-Dichloroethane	13	0.5	0.19	ug/L	4/16/05	4/16/05
CLP VOL	1,1-Dichloroethene	11	0.5	0.30	ug/L	4/16/05	4/16/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/16/05	4/16/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/16/05	4/16/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/16/05	4/16/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/16/05	4/16/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/16/05	4/16/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/16/05	4/16/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/16/05	4/16/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/16/05	4/16/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/16/05	4/16/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/16/05	4/16/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/16/05	4/16/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/16/05	4/16/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/16/05	4/16/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/16/05	4/16/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	4/16/05	4/16/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/16/05	4/16/05
CLP VOL	cis-1,2-Dichloroethane	530 E	0.5	0.16	ug/L	4/16/05	4/16/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/16/05	4/16/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/16/05	4/16/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/16/05	4/16/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/16/05	4/16/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/16/05	4/16/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/16/05	4/16/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/16/05	4/16/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/16/05	4/16/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0415N30  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:23:15 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1057

Sample Collection Date: 4/15/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47163

APPL ID: AX17837

QCG: SC42VT-050415BN-85797

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	5.2	0.5	0.15	ug/L	4/16/05	4/16/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/16/05	4/16/05
CLP VOL	trans-1,2-Dichloroethene	1.1	0.5	0.19	ug/L	4/16/05	4/16/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/16/05	4/16/05
CLP VOL	Trichloroethene	62	0.5	0.16	ug/L	4/16/05	4/16/05
CLP VOL	Vinyl Chloride	0.40 J	0.5	0.23	ug/L	4/16/05	4/16/05
CLP VOL	Surrogate Recovery (BFB)	110	75-125		%	4/16/05	4/16/05
CLP VOL	Surrogate Recovery (DCA)	113	62-139		%	4/16/05	4/16/05
CLP VOL	Surrogate Recovery (TOL)	111	75-125		%	4/16/05	4/16/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0415N30  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed 4/25/05 5:23 15 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1057

Sample Collection Date: 4/15/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47163

APPL ID: AX17837

QCG: SC42VD-050418BN-86875

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	380	12.5	4.00	ug/L	4/19/05	4/19/05
CLP VOL	Surrogate Recovery (BFB)	110	75-125		%	4/19/05	4/19/05
CLP VOL	Surrogate Recovery (DCA)	123	62-139		%	4/19/05	4/19/05
CLP VOL	Surrogate Recovery (TOL)	106	75-125		%	4/19/05	4/19/05

Run #: 0418N28  
Instrument: Neo  
Sequence: N050418  
Dilution Factor: 25  
Initials: LF

Printed 5/16/05 3:19:57 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47163

Sample ID: 86-WOPT-1058

APPL ID: AX17838

Sample Collection Date: 4/15/05

OCG: SC42VT-050415BN-85797

Method	Analyte	Result	FQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	0.85	0.5	0.14	ug/L	4/16/05	4/16/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/16/05	4/16/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	19	0.5	0.21	ug/L	4/16/05	4/16/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/16/05	4/16/05
CLP VOL	1,1-Dichloroethane	15	0.5	0.19	ug/L	4/16/05	4/16/05
CLP VOL	1,1-Dichloroethene	31	0.5	0.30	ug/L	4/16/05	4/16/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/16/05	4/16/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/16/05	4/16/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/16/05	4/16/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/16/05	4/16/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/16/05	4/16/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/16/05	4/16/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/16/05	4/16/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/16/05	4/16/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/16/05	4/16/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/16/05	4/16/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/16/05	4/16/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/16/05	4/16/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/16/05	4/16/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/16/05	4/16/05
CLP VOL	Chloroform	0.27 J	0.5	0.16	ug/L	4/16/05	4/16/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/16/05	4/16/05
CLP VOL	cis-1,2-Dichloroethene	760 E	0.5	0.16	ug/L	4/16/05	4/16/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/16/05	4/16/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/16/05	4/16/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/16/05	4/16/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/16/05	4/16/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/16/05	4/16/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/16/05	4/16/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/16/05	4/16/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/16/05	4/16/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0415N31  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:23:15 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1058

Sample Collection Date: 4/15/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47163

APPL ID: AX17838

QCG: SC42VT-050415BN-85797

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	46	0.5	0.15	ug/L	4/16/05	4/16/05
CLP VOL	Toluene	0.25 J	0.5	0.17	ug/L	4/16/05	4/16/05
CLP VOL	trans-1,2-Dichloroethene	2.6	0.5	0.19	ug/L	4/16/05	4/16/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/16/05	4/16/05
CLP VOL	Trichloroethene	950 E	0.5	0.16	ug/L	4/16/05	4/16/05
CLP VOL	Vinyl Chloride	0.77	0.5	0.23	ug/L	4/16/05	4/16/05
CLP VOL	Surrogate Recovery (BFB)	108	75-125		%	4/16/05	4/16/05
CLP VOL	Surrogate Recovery (DCA)	115	62-139		%	4/16/05	4/16/05
CLP VOL	Surrogate Recovery (TOL)	103	75-125		%	4/16/05	4/16/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0415N31  
Instrument: Neo  
Sequence: N050412  
Dilution Factor: 1  
Initials: LF

Printed 4/25/05 5:23:15 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1058

Sample Collection Date: 4/15/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47163

APPL ID: AX17838

QCG: SC42VD-050418BN-86875

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	660	25	8.00	ug/L	4/19/05	4/19/05
CLP VOL	Trichloroethene	790	25	8.00	ug/L	4/19/05	4/19/05
CLP VOL	Surrogate Recovery (BFB)	105	75-125		%	4/19/05	4/19/05
CLP VOL	Surrogate Recovery (DCA)	122	62-139		%	4/19/05	4/19/05
CLP VOL	Surrogate Recovery (TOL)	108	75-125		%	4/19/05	4/19/05

Run #: 0418N29  
Instrument: Neo  
Sequence: N050418  
Dilution Factor: 50  
Initials: LF

Printed 5/16/05 3:19:57 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 68 Moffett Airfield

Sample ID: 86-WOPT-1059

Sample Collection Date: 4/15/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47163

APPL ID: AX17839

QCG: S86TTS-050415BC-85798

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 8.5 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	0.89	ug/Kg	4/16/05	4/16/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.4	ug/Kg	4/16/05	4/16/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.52	ug/Kg	4/16/05	4/16/05
EPA 8260B	1,1-Dichloroethane	Not detected	6	1.2	ug/Kg	4/16/05	4/16/05
EPA 8260B	1,1-Dichloroethene	1.3 J	6	0.86	ug/Kg	4/16/05	4/16/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.79	ug/Kg	4/16/05	4/16/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.68	ug/Kg	4/16/05	4/16/05
EPA 8260B	2-Butanone	Not detected	55	0.78	ug/Kg	4/16/05	4/16/05
EPA 8260B	2-Hexanone	Not detected	55	0.17	ug/Kg	4/16/05	4/16/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	55	1.0	ug/Kg	4/16/05	4/16/05
EPA 8260B	Acetone	Not detected	110	3.1	ug/Kg	4/16/05	4/16/05
EPA 8260B	Benzene	Not detected	6	0.69	ug/Kg	4/16/05	4/16/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.75	ug/Kg	4/16/05	4/16/05
EPA 8260B	Bromoform	Not detected	6	0.87	ug/Kg	4/16/05	4/16/05
EPA 8260B	Bromomethane	Not detected	11	1.8	ug/Kg	4/16/05	4/16/05
EPA 8260B	Carbon disulfide	Not detected	6	1.2	ug/Kg	4/16/05	4/16/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.87	ug/Kg	4/16/05	4/16/05
EPA 8260B	Chlorobenzene	Not detected	6	0.54	ug/Kg	4/16/05	4/16/05
EPA 8260B	Chloroethane	Not detected	6	1.7	ug/Kg	4/16/05	4/16/05
EPA 8260B	Chloroform	Not detected	6	1.6	ug/Kg	4/16/05	4/16/05
EPA 8260B	Chloromethane	Not detected	6	2.0	ug/Kg	4/16/05	4/16/05
EPA 8260B	cis-1,2-Dichloroethene	38	6	1.2	ug/Kg	4/16/05	4/16/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.51	ug/Kg	4/16/05	4/16/05
EPA 8260B	Dibromochloromethane	Not detected	6	0.93	ug/Kg	4/16/05	4/16/05
EPA 8260B	Ethylbenzene	Not detected	6	0.70	ug/Kg	4/16/05	4/16/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	0.97	ug/Kg	4/16/05	4/16/05
EPA 8260B	Methylene chloride	Not detected	55	5.0	ug/Kg	4/16/05	4/16/05
EPA 8260B	Styrene	Not detected	6	0.75	ug/Kg	4/16/05	4/16/05
EPA 8260B	Tetrachloroethene	0.64 J	6	0.59	ug/Kg	4/16/05	4/16/05
EPA 8260B	Toluene	Not detected	6	0.71	ug/Kg	4/16/05	4/16/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.5	ug/Kg	4/16/05	4/16/05

J = Estimated value, below quantitation limit.

Run #: 0415C30  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed 4/25/05 5:23:15 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Desre Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47163

Sample ID: 86-WOPT-1059

APPL ID: AX17839

Sample Collection Date: 4/15/05

QCG: \$86TTS-050415BC-85798

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.47	ug/Kg	4/16/05	4/16/05
EPA 8260B	Trichloroethene	150	6	0.78	ug/Kg	4/16/05	4/16/05
EPA 8260B	Vinyl Acetate	Not detected	55	1.1	ug/Kg	4/16/05	4/16/05
EPA 8260B	Vinyl chloride	Not detected	6	1.8	ug/Kg	4/16/05	4/16/05
EPA 8260B	Xylenes	Not detected	16	0.74	ug/Kg	4/16/05	4/16/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	110	52-149		%	4/16/05	4/16/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	100	65-135		%	4/16/05	4/16/05
EPA 8260B	Surrogate recovery: Toluene-d8	94.5	65-135		%	4/16/05	4/16/05

J = Estimated value, below quantitation limit.

Run #: 0415C30  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:23:15 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47163

Sample ID: 86-WOPT-1060

APPL ID: AX17840

Sample Collection Date: 4/15/05

OCG: S86TTS-050415BC-85798

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 22.0 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	1.0	ug/Kg	4/16/05	4/16/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.6	ug/Kg	4/16/05	4/16/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.62	ug/Kg	4/16/05	4/16/05
EPA 8260B	1,1-Dichloroethane	3.1 J	6	1.4	ug/Kg	4/16/05	4/16/05
EPA 8260B	1,1-Dichloroethene	3.2 J	6	1.0	ug/Kg	4/16/05	4/16/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.92	ug/Kg	4/16/05	4/16/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.79	ug/Kg	4/16/05	4/16/05
EPA 8260B	2-Butanone	Not detected	64	0.91	ug/Kg	4/16/05	4/16/05
EPA 8260B	2-Hexanone	Not detected	64	0.21	ug/Kg	4/16/05	4/16/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	64	1.2	ug/Kg	4/16/05	4/16/05
EPA 8260B	Acetone	Not detected	130	3.6	ug/Kg	4/16/05	4/16/05
EPA 8260B	Benzene	Not detected	6	0.81	ug/Kg	4/16/05	4/16/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.88	ug/Kg	4/16/05	4/16/05
EPA 8260B	Bromoform	Not detected	6	1.0	ug/Kg	4/16/05	4/16/05
EPA 8260B	Bromomethane	Not detected	13	2.0	ug/Kg	4/16/05	4/16/05
EPA 8260B	Carbon disulfide	Not detected	6	1.4	ug/Kg	4/16/05	4/16/05
EPA 8260B	Carbon tetrachloride	Not detected	6	1.0	ug/Kg	4/16/05	4/16/05
EPA 8260B	Chlorobenzene	Not detected	6	0.63	ug/Kg	4/16/05	4/16/05
EPA 8260B	Chloroethane	Not detected	6	2.0	ug/Kg	4/16/05	4/16/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	4/16/05	4/16/05
EPA 8260B	Chloromethane	Not detected	6	2.3	ug/Kg	4/16/05	4/16/05
EPA 8260B	cis-1,2-Dichloroethene	220	6	1.4	ug/Kg	4/16/05	4/16/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.60	ug/Kg	4/16/05	4/16/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.1	ug/Kg	4/16/05	4/16/05
EPA 8260B	Ethylbenzene	Not detected	6	0.82	ug/Kg	4/16/05	4/16/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/16/05	4/16/05
EPA 8260B	Methylene chloride	Not detected	64	5.9	ug/Kg	4/16/05	4/16/05
EPA 8260B	Styrene	Not detected	6	0.88	ug/Kg	4/16/05	4/16/05
EPA 8260B	Tetrachloroethene	2.1 J	6	0.69	ug/Kg	4/16/05	4/16/05
EPA 8260B	Toluene	Not detected	6	0.83	ug/Kg	4/16/05	4/16/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.7	ug/Kg	4/16/05	4/16/05

J = Estimated value, below quantitation limit.

Run #: 0415C31  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:23:15 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1060

Sample Collection Date: 4/15/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47163

APPL ID: AX17840

QCG: \$86TTS-050415BC-85798

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.55	ug/Kg	4/16/05	4/16/05
EPA 8260B	Trichloroethene	14	6	0.91	ug/Kg	4/16/05	4/16/05
EPA 8260B	Vinyl Acetate	Not detected	64	1.3	ug/Kg	4/16/05	4/16/05
EPA 8260B	Vinyl chloride	Not detected	6	2.1	ug/Kg	4/16/05	4/16/05
EPA 8260B	Xylenes	Not detected	19	0.87	ug/Kg	4/16/05	4/16/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	106	52-149		%	4/16/05	4/16/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	104	65-135		%	4/16/05	4/16/05
EPA 8260B	Surrogate recovery: Toluene-d8	95.4	65-135		%	4/16/05	4/16/05

J = Estimated value, below quantitation limit.

Run #: 0415C31  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:23:15 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47163

Sample ID: 86-WOPT-1061

APPL ID: AX17841

Sample Collection Date: 4/15/05

QCG: \$86TTS-050415BC-85798

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 22.6 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	7	1.0	ug/Kg	4/16/05	4/16/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	7	1.6	ug/Kg	4/16/05	4/16/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	7	0.62	ug/Kg	4/16/05	4/16/05
EPA 8260B	1,1-Dichloroethane	2.5 J	7	1.5	ug/Kg	4/16/05	4/16/05
EPA 8260B	1,1-Dichloroethane	2.8 J	7	1.0	ug/Kg	4/16/05	4/16/05
EPA 8260B	1,2-Dichloroethane	Not detected	7	0.93	ug/Kg	4/16/05	4/16/05
EPA 8260B	1,2-Dichloropropane	Not detected	7	0.80	ug/Kg	4/16/05	4/16/05
EPA 8260B	2-Butanone	Not detected	65	0.92	ug/Kg	4/16/05	4/16/05
EPA 8260B	2-Hexanone	Not detected	65	0.21	ug/Kg	4/16/05	4/16/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	65	1.2	ug/Kg	4/16/05	4/16/05
EPA 8260B	Acetone	Not detected	130	3.6	ug/Kg	4/16/05	4/16/05
EPA 8260B	Benzene	Not detected	7	0.81	ug/Kg	4/16/05	4/16/05
EPA 8260B	Bromodichloromethane	Not detected	7	0.89	ug/Kg	4/16/05	4/16/05
EPA 8260B	Bromoform	Not detected	7	1.0	ug/Kg	4/16/05	4/16/05
EPA 8260B	Bromomethane	Not detected	13	2.1	ug/Kg	4/16/05	4/16/05
EPA 8260B	Carbon disulfide	Not detected	7	1.4	ug/Kg	4/16/05	4/16/05
EPA 8260B	Carbon tetrachloride	Not detected	7	1.0	ug/Kg	4/16/05	4/16/05
EPA 8260B	Chlorobenzene	Not detected	7	0.63	ug/Kg	4/16/05	4/16/05
EPA 8260B	Chloroethane	Not detected	7	2.0	ug/Kg	4/16/05	4/16/05
EPA 8260B	Chloroform	Not detected	7	1.8	ug/Kg	4/16/05	4/16/05
EPA 8260B	Chloromethane	Not detected	7	2.4	ug/Kg	4/16/05	4/16/05
EPA 8260B	cis-1,2-Dichloroethene	170	7	1.4	ug/Kg	4/16/05	4/16/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	7	0.61	ug/Kg	4/16/05	4/16/05
EPA 8260B	Dibromochloromethane	Not detected	7	1.1	ug/Kg	4/16/05	4/16/05
EPA 8260B	Ethylbenzene	Not detected	7	0.83	ug/Kg	4/16/05	4/16/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	7	1.1	ug/Kg	4/16/05	4/16/05
EPA 8260B	Methylene chloride	Not detected	65	5.9	ug/Kg	4/16/05	4/16/05
EPA 8260B	Styrene	Not detected	7	0.89	ug/Kg	4/16/05	4/16/05
EPA 8260B	Tetrachloroethene	3.6 J	7	0.70	ug/Kg	4/16/05	4/16/05
EPA 8260B	Toluene	Not detected	7	0.84	ug/Kg	4/16/05	4/16/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	7	1.7	ug/Kg	4/16/05	4/16/05

J = Estimated value, below quantitation limit.

Run #: 0415C32  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:23:15 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47153

Sample ID: 86-WOPT-1061

APPL ID: AX17841

Sample Collection Date: 4/15/05

QCG: \$86TTS-050415BC-85798

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	7	0.56	ug/Kg	4/16/05	4/16/05
EPA 8260B	Trichloroethene	70	7	0.92	ug/Kg	4/16/05	4/16/05
EPA 8260B	Vinyl Acetate	Not detected	65	1.3	ug/Kg	4/16/05	4/16/05
EPA 8260B	Vinyl chloride	Not detected	7	2.2	ug/Kg	4/16/05	4/16/05
EPA 8260B	Xylenes	Not detected	19	0.88	ug/Kg	4/16/05	4/16/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	109	52-149		%	4/16/05	4/16/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	103	65-135		%	4/16/05	4/16/05
EPA 8260B	Surrogate recovery: Toluene-d8	102	65-135		%	4/16/05	4/16/05

J = Estimated value, below quantitation limit.

Run #: 0415C32  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:23:15 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47163

Sample ID: 86-WOPT-1062

APPL ID: AX17842

Sample Collection Date: 4/15/05

CCG: \$86TTS-050415BC-85798

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 20.1 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	1.0	ug/Kg	4/16/05	4/16/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.6	ug/Kg	4/16/05	4/16/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.60	ug/Kg	4/16/05	4/16/05
EPA 8260B	1,1-Dichloroethane	2.0 J	6	1.4	ug/Kg	4/16/05	4/16/05
EPA 8260B	1,1-Dichloroethene	4.0 J	6	0.99	ug/Kg	4/16/05	4/16/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.90	ug/Kg	4/16/05	4/16/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.78	ug/Kg	4/16/05	4/16/05
EPA 8260B	2-Butanone	Not detected	63	0.89	ug/Kg	4/16/05	4/16/05
EPA 8260B	2-Hexanone	Not detected	63	0.20	ug/Kg	4/16/05	4/16/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	63	1.2	ug/Kg	4/16/05	4/16/05
EPA 8260B	Acetone	Not detected	130	3.5	ug/Kg	4/16/05	4/16/05
EPA 8260B	Benzene	Not detected	6	0.79	ug/Kg	4/16/05	4/16/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.86	ug/Kg	4/16/05	4/16/05
EPA 8260B	Bromoform	Not detected	6	1.0	ug/Kg	4/16/05	4/16/05
EPA 8260B	Bromomethane	Not detected	13	2.0	ug/Kg	4/16/05	4/16/05
EPA 8260B	Carbon disulfide	Not detected	6	1.4	ug/Kg	4/16/05	4/16/05
EPA 8260B	Carbon tetrachloride	Not detected	6	1.0	ug/Kg	4/16/05	4/16/05
EPA 8260B	Chlorobenzene	Not detected	6	0.61	ug/Kg	4/16/05	4/16/05
EPA 8260B	Chloroethane	Not detected	6	1.9	ug/Kg	4/16/05	4/16/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	4/16/05	4/16/05
EPA 8260B	Chloromethane	Not detected	6	2.3	ug/Kg	4/16/05	4/16/05
EPA 8260B	cis-1,2-Dichloroethene	110	6	1.3	ug/Kg	4/16/05	4/16/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.59	ug/Kg	4/16/05	4/16/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.1	ug/Kg	4/16/05	4/16/05
EPA 8260B	Ethylbenzene	Not detected	6	0.80	ug/Kg	4/16/05	4/16/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/16/05	4/16/05
EPA 8260B	Methylene chloride	Not detected	63	5.7	ug/Kg	4/16/05	4/16/05
EPA 8260B	Styrene	Not detected	6	0.86	ug/Kg	4/16/05	4/16/05
EPA 8260B	Tetrachloroethene	11	6	0.68	ug/Kg	4/16/05	4/16/05
EPA 8260B	Toluene	Not detected	6	0.81	ug/Kg	4/16/05	4/16/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.7	ug/Kg	4/16/05	4/16/05

J = Estimated value, below quantitation limit.

Run #: 0415C33  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:23:15 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1062

Sample Collection Date: 4/15/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47163

APPL ID: AX17842

QCG: \$86TTS-050415BC-85798

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.54	ug/Kg	4/16/05	4/16/05
EPA 8260B	Trichloroethene	190	6	0.89	ug/Kg	4/16/05	4/16/05
EPA 8260B	Vinyl Acetate	Not detected	63	1.3	ug/Kg	4/16/05	4/16/05
EPA 8260B	Vinyl chloride	Not detected	6	2.1	ug/Kg	4/16/05	4/16/05
EPA 8260B	Xylenes	Not detected	19	0.85	ug/Kg	4/16/05	4/16/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	110	52-149		%	4/16/05	4/16/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	105	65-135		%	4/16/05	4/16/05
EPA 8260B	Surrogate recovery: Toluene-d8	94.6	65-135		%	4/16/05	4/16/05

J = Estimated value, below quantitation limit.

Run #: 0415C33  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:23 15 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1063

Sample Collection Date: 4/15/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47163

APPL ID: AX17843

QCG: S86TTS-050415BC-85798

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 19.9 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	1.0	ug/Kg	4/16/05	4/16/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.6	ug/Kg	4/16/05	4/16/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.60	ug/Kg	4/16/05	4/16/05
EPA 8260B	1,1-Dichloroethane	1.4 J	6	1.4	ug/Kg	4/16/05	4/16/05
EPA 8260B	1,1-Dichloroethene	2.1 J	6	0.99	ug/Kg	4/16/05	4/16/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.90	ug/Kg	4/16/05	4/16/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.77	ug/Kg	4/16/05	4/16/05
EPA 8260B	2-Butanone	Not detected	62	0.89	ug/Kg	4/16/05	4/16/05
EPA 8260B	2-Hexanone	Not detected	62	0.20	ug/Kg	4/16/05	4/16/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	62	1.2	ug/Kg	4/16/05	4/16/05
EPA 8260B	Acetone	Not detected	120	3.5	ug/Kg	4/16/05	4/16/05
EPA 8260B	Benzene	Not detected	6	0.79	ug/Kg	4/16/05	4/16/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.86	ug/Kg	4/16/05	4/16/05
EPA 8260B	Bromoform	Not detected	6	1.0	ug/Kg	4/16/05	4/16/05
EPA 8260B	Bromomethane	Not detected	12	2.0	ug/Kg	4/16/05	4/16/05
EPA 8260B	Carbon disulfide	Not detected	6	1.4	ug/Kg	4/16/05	4/16/05
EPA 8260B	Carbon tetrachloride	Not detected	6	1.0	ug/Kg	4/16/05	4/16/05
EPA 8260B	Chlorobenzene	Not detected	6	0.61	ug/Kg	4/16/05	4/16/05
EPA 8260B	Chloroethane	Not detected	6	1.9	ug/Kg	4/16/05	4/16/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	4/16/05	4/16/05
EPA 8260B	Chloromethane	Not detected	6	2.3	ug/Kg	4/16/05	4/16/05
EPA 8260B	cis-1,2-Dichloroethene	42	6	1.3	ug/Kg	4/16/05	4/16/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.59	ug/Kg	4/16/05	4/16/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.1	ug/Kg	4/16/05	4/16/05
EPA 8260B	Ethylbenzene	Not detected	6	0.80	ug/Kg	4/16/05	4/16/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/16/05	4/16/05
EPA 8260B	Methylene chloride	Not detected	62	5.7	ug/Kg	4/16/05	4/16/05
EPA 8260B	Styrene	Not detected	6	0.86	ug/Kg	4/16/05	4/16/05
EPA 8260B	Tetrachloroethene	9.2	6	0.67	ug/Kg	4/16/05	4/16/05
EPA 8260B	Toluene	Not detected	6	0.81	ug/Kg	4/16/05	4/16/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.7	ug/Kg	4/16/05	4/16/05

J = Estimated value, below quantitation limit.

Run #: 0415C34  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:23:16 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1063

Sample Collection Date: 4/15/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47163

APPL ID: AX17843

QCG: \$86TTS-050415BC-85798

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.54	ug/Kg	4/16/05	4/16/05
EPA 8260B	Trichloroethene	150	6	0.89	ug/Kg	4/16/05	4/16/05
EPA 8260B	Vinyl Acetate	Not detected	62	1.2	ug/Kg	4/16/05	4/16/05
EPA 8260B	Vinyl chloride	Not detected	6	2.1	ug/Kg	4/16/05	4/16/05
EPA 8260B	Xylenes	Not detected	19	0.85	ug/Kg	4/16/05	4/16/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	111	52-149		%	4/16/05	4/16/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	106	65-135		%	4/16/05	4/16/05
EPA 8260B	Surrogate recovery: Toluene-d8	95.2	65-135		%	4/16/05	4/16/05

J = Estimated value, below quantitation limit.

Run #: 0415C34  
Instrument: Chico  
Sequence: C050413  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:23:16 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.088D WATS Bldg 88 Moffett Airfield

ARF: 47163

Sample ID: 86-WOPT-1064

APPL ID: AX17844

Sample Collection Date: 4/15/05

QCG: \$86TTW-050418AS-85817

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/18/05	4/18/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/18/05	4/18/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/18/05	4/18/05
EPA 8260B	1,1-Dichloroethane	Not detected	0.5	0.19	ug/L	4/18/05	4/18/05
EPA 8260B	1,1-Dichloroethene	Not detected	0.5	0.30	ug/L	4/18/05	4/18/05
EPA 8260B	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/18/05	4/18/05
EPA 8260B	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/18/05	4/18/05
EPA 8260B	2-Butanone	Not detected	5	0.6	ug/L	4/18/05	4/18/05
EPA 8260B	2-Hexanone	Not detected	5	0.92	ug/L	4/18/05	4/18/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/18/05	4/18/05
EPA 8260B	Acetone	Not detected	5	0.95	ug/L	4/18/05	4/18/05
EPA 8260B	Benzene	Not detected	0.5	0.16	ug/L	4/18/05	4/18/05
EPA 8260B	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/18/05	4/18/05
EPA 8260B	Bromoform	Not detected	0.5	0.14	ug/L	4/18/05	4/18/05
EPA 8260B	Bromomethane	Not detected	1	0.24	ug/L	4/18/05	4/18/05
EPA 8260B	Carbon disulfide	Not detected	0.5	0.2	ug/L	4/18/05	4/18/05
EPA 8260B	Carbon tetrachloride	Not detected	0.5	0.10	ug/L	4/18/05	4/18/05
EPA 8260B	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/18/05	4/18/05
EPA 8260B	Chloroethane	Not detected	0.5	0.21	ug/L	4/18/05	4/18/05
EPA 8260B	Chloroform	Not detected	0.5	0.16	ug/L	4/18/05	4/18/05
EPA 8260B	Chloromethane	Not detected	0.5	0.31	ug/L	4/18/05	4/18/05
EPA 8260B	cis-1,2-Dichloroethene	Not detected	0.5	0.16	ug/L	4/18/05	4/18/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/18/05	4/18/05
EPA 8260B	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/18/05	4/18/05
EPA 8260B	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/18/05	4/18/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/18/05	4/18/05
EPA 8260B	Methylene chloride	Not detected	5	0.35	ug/L	4/18/05	4/18/05
EPA 8260B	Styrene	Not detected	0.5	0.25	ug/L	4/18/05	4/18/05
EPA 8260B	Tetrachloroethene	Not detected	0.5	0.15	ug/L	4/18/05	4/18/05
EPA 8260B	Toluene	Not detected	0.5	0.17	ug/L	4/18/05	4/18/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	0.5	0.19	ug/L	4/18/05	4/18/05

Run #: 0418S07  
Instrument: Sweetpea  
Sequence: S050414  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:23:16 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1064

Sample Collection Date: 4/15/05

ARF: 47163

APPL ID: AX17844

QCG: S86TTW-050418AS-85817

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/18/05	4/18/05
EPA 8260B	Trichloroethene	Not detected	0.5	0.16	ug/L	4/18/05	4/18/05
EPA 8260B	Vinyl Acetate	Not detected	5	0.31	ug/L	4/18/05	4/18/05
EPA 8260B	Vinyl chloride	Not detected	0.5	0.23	ug/L	4/18/05	4/18/05
EPA 8260B	Xylenes	Not detected	1.5	0.19	ug/L	4/18/05	4/18/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	109	62-139		%	4/18/05	4/18/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	105	75-125		%	4/18/05	4/18/05
EPA 8260B	Surrogate recovery: Toluene-d8	96.8	75-125		%	4/18/05	4/18/05

Run #: 0418S07  
Instrument: Sweetpea  
Sequence: S050414  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:23:16 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47163

Sample ID: 86-WOPT-552

APPL ID: AX17824

Sample Collection Date: 4/15/05

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	436	25	0.14	mg/L	4/21/05	4/25/05
6010B	Iron (Fe)	39.9	0.5	0.13	mg/L	4/21/05	4/25/05
6010B	Magnesium (Mg)	140	25	0.065	mg/L	4/21/05	4/25/05
6010B	Potassium (K)	7.3 J	25	0.50	mg/L	4/21/05	4/25/05
6010B	Sodium (Na)	44.5	25	0.56	mg/L	4/21/05	4/25/05

J = Estimated value, below quantitation limit.

Printed: 4/30/05 3:20:23 PM

2L-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47163

Sample ID: 86-WOPT-553

APPL ID: AX17825

Sample Collection Date: 4/15/05

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	313	25	0.14	mg/L	4/21/05	4/25/05
6010B	Calcium (Ca)	321 E	5	0.0272	mg/L	4/21/05	4/23/05
6010B	Iron (Fe)	29.1	0.1	0.0258	mg/L	4/21/05	4/23/05
6010B	Magnesium (Mg)	101	25	0.065	mg/L	4/21/05	4/25/05
6010B	Magnesium (Mg)	100 E	5	0.0129	mg/L	4/21/05	4/23/05
6010B	Potassium (K)	5.2	5	0.0995	mg/L	4/21/05	4/23/05
6010B	Sodium (Na)	43.5	5	0.1111	mg/L	4/21/05	4/23/05

E = The reported value exceeds linear range.

Printed: 4/30/05 3:20:23 PM

2L-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47163

Sample ID: 86-WOPT-554

APPL ID: AX17826

Sample Collection Date: 4/15/05

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	671	50	0.27	mg/L	4/21/05	4/26/05
6010B	Calcium (Ca)	645 E	5	0.0272	mg/L	4/21/05	4/23/05
6010B	Iron (Fe)	27.7	0.1	0.0258	mg/L	4/21/05	4/23/05
6010B	Magnesium (Mg)	158	25	0.065	mg/L	4/21/05	4/25/05
6010B	Magnesium (Mg)	147 E	5	0.0129	mg/L	4/21/05	4/23/05
6010B	Potassium (K)	12.8	5	0.0995	mg/L	4/21/05	4/23/05
6010B	Sodium (Na)	44.1	5	0.1111	mg/L	4/21/05	4/23/05

E = The reported value exceeds linear range.

Printed: 4/30/05 3:20:23 PM

2L-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield  
Sample ID: 86-WOPT-555  
Sample Collection Date: 4/15/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47163  
APPL ID: AX17827

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	205	25	0.14	mg/L	4/21/05	4/25/05
6010B	Calcium (Ca)	192 E	5	0.0272	mg/L	4/21/05	4/25/05
6010B	Iron (Fe)	18.9	0.1	0.0258	mg/L	4/21/05	4/25/05
6010B	Magnesium (Mg)	66.5	5	0.0129	mg/L	4/21/05	4/25/05
6010B	Potassium (K)	3.2 J	5	0.0995	mg/L	4/21/05	4/25/05
6010B	Sodium (Na)	36.1	5	0.1111	mg/L	4/21/05	4/25/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Printed: 4/30/05 3:20:23 PM  
2L-F1-SC-MCRes/MCPQL-REG MDLs



## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: **86-WOPT-1054**

Sample Collection Date: 4/15/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47163

APPL ID: **AX17834**

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	829	50	0.27	mg/L	4/21/05	4/26/05
6010B	Calcium (Ca)	763 E	5	0.0272	mg/L	4/21/05	4/25/05
6010B	Iron (Fe)	20.4	0.1	0.0258	mg/L	4/21/05	4/25/05
6010B	Magnesium (Mg)	111	25	0.065	mg/L	4/21/05	4/25/05
6010B	Magnesium (Mg)	103 E	5	0.0129	mg/L	4/21/05	4/25/05
6010B	Potassium (K)	12.2	5	0.0995	mg/L	4/21/05	4/25/05
6010B	Sodium (Na)	46.9	5	0.1111	mg/L	4/21/05	4/25/05

E = The reported value exceeds linear range.

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield  
Sample ID: 86-WOPT-1055  
Sample Collection Date: 4/15/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47163  
APPL ID: AX17835

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	502	50	0.27	mg/L	4/21/05	4/26/05
6010B	Calcium (Ca)	470 E	5	0.0272	mg/L	4/21/05	4/25/05
6010B	Iron (Fe)	43.9	0.50	0.13	mg/L	4/21/05	4/25/05
6010B	Iron (Fe)	41.0 E	0.1	0.0258	mg/L	4/21/05	4/25/05
6010B	Magnesium (Mg)	134	25	0.065	mg/L	4/21/05	4/25/05
6010B	Magnesium (Mg)	125 E	5	0.0129	mg/L	4/21/05	4/25/05
6010B	Potassium (K)	9.3	5	0.0995	mg/L	4/21/05	4/25/05
6010B	Sodium (Na)	46.1	5	0.1111	mg/L	4/21/05	4/25/05

E = The reported value exceeds linear range.

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1056

Sample Collection Date: 4/15/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47163

APPL ID: AX17836

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	305	25	0.14	mg/L	4/21/05	4/25/05
6010B	Calcium (Ca)	286 E	5	0.0272	mg/L	4/21/05	4/25/05
6010B	Iron (Fe)	29.2	0.1	0.0258	mg/L	4/21/05	4/25/05
6010B	Magnesium (Mg)	93.1	5	0.0129	mg/L	4/21/05	4/25/05
6010B	Potassium (K)	7.7	5	0.0995	mg/L	4/21/05	4/25/05
6010B	Sodium (Na)	42.4	5	0.1111	mg/L	4/21/05	4/25/05

E = The reported value exceeds linear range.

Printed: 4/30/05 3:20:23 PM  
2L-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1057

Sample Collection Date: 4/15/05

ARF: 47163

APPL ID: AX17837

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	1440	100	0.54	mg/L	4/21/05	4/26/05
6010B	Calcium (Ca)	1310 E	5	0.0272	mg/L	4/21/05	4/25/05
6010B	Iron (Fe)	7.8	0.1	0.0258	mg/L	4/21/05	4/25/05
6010B	Magnesium (Mg)	199	25	0.065	mg/L	4/21/05	4/25/05
6010B	Magnesium (Mg)	183 E	5	0.0129	mg/L	4/21/05	4/25/05
6010B	Potassium (K)	8.9	5	0.0995	mg/L	4/21/05	4/25/05
6010B	Sodium (Na)	51.7	5	0.1111	mg/L	4/21/05	4/25/05

E = The reported value exceeds linear range.

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2L-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47163

Sample ID: 86-WOPT-1058

APPL ID: AX17838

Sample Collection Date: 4/15/05

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	340	25	0.14	mg/L	4/21/05	4/25/05
6010B	Calcium (Ca)	331 E	5	0.0272	mg/L	4/21/05	4/25/05
6010B	Iron (Fe)	21.4	0.1	0.0258	mg/L	4/21/05	4/25/05
6010B	Magnesium (Mg)	105	25	0.065	mg/L	4/21/05	4/25/05
6010B	Magnesium (Mg)	102 E	5	0.0129	mg/L	4/21/05	4/25/05
6010B	Potassium (K)	11.9	5	0.0995	mg/L	4/21/05	4/25/05
6010B	Sodium (Na)	44.3	5	0.1111	mg/L	4/21/05	4/25/05

E = The reported value exceeds linear range.

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2L-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: **86-WOPT-552**

Sample Collection Date: 4/15/05

APPL ID: **AX17824**

ARF: 47163

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	37500	1000	80	ug/L	4/18/05	4/18/05
EPA 300.0	Nitrate	7280	200	15	ug/L	4/18/05	4/18/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/18/05	4/18/05
EPA 300.0	Sulfate	305000 E	1000	90	ug/L	4/18/05	4/18/05
EPA 300.0	Sulfate	256000	5000	450	ug/L	4/18/05	4/18/05
EPA 310.1	Bicarbonate	410	5	0.787	mg/L	4/25/05	4/25/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/25/05	4/25/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-553

Sample Collection Date: 4/15/05

APPL ID: AX17825

ARF: 47163

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	39000	1000	80	ug/L	4/18/05	4/18/05
EPA 300.0	Nitrate	7580	200	15	ug/L	4/18/05	4/18/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/18/05	4/18/05
EPA 300.0	Sulfate	323000 E	1000	90	ug/L	4/18/05	4/18/05
EPA 300.0	Sulfate	271000	5000	450	ug/L	4/18/05	4/18/05
EPA 310.1	Bicarbonate	396	5	0.787	mg/L	4/25/05	4/25/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/25/05	4/25/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-554

Sample Collection Date: 4/15/05

APPL ID: AX17826

ARF: 47163

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	39700	1000	80	ug/L	4/18/05	4/18/05
EPA 300.0	Nitrate	8360	200	15	ug/L	4/18/05	4/18/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/18/05	4/18/05
EPA 300.0	Sulfate	303000 E	1000	90	ug/L	4/18/05	4/18/05
EPA 300.0	Sulfate	254000	5000	450	ug/L	4/18/05	4/18/05
EPA 310.1	Bicarbonate	299	5	0.787	mg/L	4/25/05	4/25/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/25/05	4/25/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs



## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.036D WATS Bldg 86 Moffett Airfield

Sample ID: 86-WOPT-555

Sample Collection Date: 4/15/05

APPL ID: AX17827

ARF: 47163

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	39500	1000	80	ug/L	4/18/05	4/18/05
EPA 300.0	Nitrate	7690	200	15	ug/L	4/18/05	4/18/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/18/05	4/18/05
EPA 300.0	Sulfate	304000 E	1000	90	ug/L	4/18/05	4/18/05
EPA 300.0	Sulfate	253000	5000	450	ug/L	4/18/05	4/18/05
EPA 310.1	Bicarbonate	306	5	0.787	mg/L	4/25/05	4/25/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/25/05	4/25/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-556

Sample Collection Date: 4/15/05

APPL ID: AX17828

ARF: 47163

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 20.8 Percent Moisture.)							
CLP MOIST	Moisture	20.8	2.0		%	4/17/05	4/17/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 88-WOPT-557

Sample Collection Date: 4/15/05

APPL ID: AX17829

ARF: 47163

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 17.0 Percent Moisture.)							
CLP MOIST	Moisture	17.0	2.0		%	4/17/05	4/17/05

Printed: 5/6/05 10:05:18 AM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-558**

**APPL ID: AX17830**

Sample Collection Date: 4/15/05

ARF: 47163

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 14.2 Percent Moisture.)							
CLP MOIST	Moisture	14.2	2.0		%	4/17/05	4/17/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.066D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-559

Sample Collection Date: 4/15/05

APPL ID: AX17831

ARF: 47163

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 17.9 Percent Moisture.)							
CLP MOIST	Moisture	17.9	2.0		%	4/17/05	4/17/05

Printed: 5/6/05 10:05:19 AM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-560

Sample Collection Date: 4/15/05

APPL ID: AX17832

ARF: 47163

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
SW846 9060	Total Organic Carbon	3.3	0.5	0.129	mg/L	4/28/05	4/28/05

Printed: 5/6/05 10:05:19 AM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1054

Sample Collection Date: 4/15/05

APPL ID: AX17834

ARF: 47163

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	27000	1000	80	ug/L	4/18/05	4/18/05
EPA 300.0	Nitrate	9630	200	15	ug/L	4/18/05	4/18/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/18/05	4/18/05
EPA 300.0	Sulfate	236000 E	1000	90	ug/L	4/18/05	4/18/05
EPA 300.0	Sulfate	199000	5000	450	ug/L	4/18/05	4/18/05
EPA 310.1	Bicarbonate	369	5	0.787	mg/L	4/25/05	4/25/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/25/05	4/25/05

E = The reported value exceeds linear range.

Printed: 5/6/05 10:05:19 AM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1055

Sample Collection Date: 4/15/05

APPL ID: AX17835

ARF: 47163

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	31200	1000	80	ug/L	4/18/05	4/18/05
EPA 300.0	Nitrate	2660	200	15	ug/L	4/18/05	4/18/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/18/05	4/18/05
EPA 300.0	Sulfate	264000 E	1000	90	ug/L	4/18/05	4/18/05
EPA 300.0	Sulfate	223000	5000	450	ug/L	4/18/05	4/18/05
EPA 310.1	Bicarbonate	417	5	0.787	mg/L	4/25/05	4/25/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/25/05	4/25/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs



## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1056

Sample Collection Date: 4/15/05

APPL ID: AX17835

ARF: 47163

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	31500	1000	80	ug/L	4/18/05	4/18/05
EPA 300.0	Nitrate	2440	200	15	ug/L	4/18/05	4/18/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/18/05	4/18/05
EPA 300.0	Sulfate	265000 E	1000	90	ug/L	4/18/05	4/18/05
EPA 300.0	Sulfate	221000	5000	450	ug/L	4/18/05	4/18/05
EPA 310.1	Bicarbonate	416	5	0.787	mg/L	4/25/05	4/25/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/25/05	4/25/05

E = The reported value exceeds linear range.

Printed: 5/6/05 10:05:19 AM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1057

Sample Collection Date: 4/15/05

APPL ID: AX17837

ARF: 47163

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	30900	1000	80	ug/L	4/18/05	4/18/05
EPA 300.0	Nitrate	5850	200	15	ug/L	4/18/05	4/18/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/18/05	4/18/05
EPA 300.0	Sulfate	261000 E	1000	90	ug/L	4/18/05	4/18/05
EPA 300.0	Sulfate	240000	5000	450	ug/L	4/18/05	4/18/05
EPA 310.1	Bicarbonate	371	5	0.787	mg/L	4/25/05	4/25/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/25/05	4/25/05

E = The reported value exceeds linear range.

Printed: 5/6/05 10:05:19 AM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1058

Sample Collection Date: 4/15/05

APPL ID: AX17838

ARF: 47163

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	37400	1000	80	ug/L	4/18/05	4/18/05
EPA 300.0	Nitrate	3340	200	15	ug/L	4/18/05	4/18/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/18/05	4/18/05
EPA 300.0	Sulfate	349000 E	1000	90	ug/L	4/18/05	4/18/05
EPA 300.0	Sulfate	295000	5000	450	ug/L	4/18/05	4/18/05
EPA 310.1	Bicarbonate	368	5	0.787	mg/L	4/25/05	4/25/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/25/05	4/25/05

E = The reported value exceeds linear range.

Printed: 5/6/05 10:05:19 AM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Blenkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOFT-1059

Sample Collection Date: 4/15/05

APPL ID: AX17839

ARF: 47163

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 8.5 Percent Moisture.)							
CLP MOIST	Moisture	8.5	2.0		%	4/17/05	4/17/05

Printed: 5/6/05 10:05:19 AM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1060

Sample Collection Date: 4/15/05

APPL ID: AX17840

ARF: 47163

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 22.0 Percent Moisture.)							
CLP MOIST	Moisture	22.0	2.0		%	4/17/05	4/17/05

Printed: 5/8/05 10:05:19 AM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1061

Sample Collection Date: 4/15/05

APPL ID: AX17841

ARF: 47163

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 22.6 Percent Moisture.)							
CLP MOIST	Moisture	22.6	2.0		%	4/17/05	4/17/05

Printed: 5/6/05 10:05:19 AM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1062

APPL ID: AX17842

Sample Collection Date: 4/15/05

ARF: 47163

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 20.1 Percent Moisture.)							
CLP MOIST	Moisture	20.1	2.0		%	4/17/05	4/17/05

Printed: 5/6/05 10:05:19 AM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-1063**

Sample Collection Date: 4/15/05

**APPL ID: AX17843**

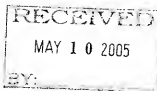
ARF: 47163

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 19.9 Percent Moisture.)							
CLP MOIST	Moisture	19.9	2.0		%	4/17/05	4/17/05

Printed: 5/6/05 10:05:19 AM

APPL-F1-SC-MCRes/MCPQL-REG MDLs





May 5, 2005

Service Request No: K2502809

Robert Wise  
APPL, Inc.  
4203 W. Swift Avenue  
Fresno, CA 93722

**RE: 47163**

Dear Robert:

Enclosed are the results of the sample(s) submitted to our laboratory on April 19, 2005. For your reference, these analyses have been assigned our service request number K2502809.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAC standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3376.

Respectfully submitted,

**Columbia Analytical Services, Inc.**

Gregory Salata, Ph.D.  
Project Chemist

GS/dj

Page 1 of 15

Client: Agriculture & Priority Pollutants Labs  
Project: 47163  
Sample Matrix: Soil

00015

## COLUMBIA ANALYTICAL SERVICES, INC.

## Analytical Report

Client : Agriculture & Priority Pollutants Labs  
 Project Name : NA  
 Project Number : 47163  
 Sample Matrix : SOIL

Service Request : K2502809  
 Date Collected : 04/15/05  
 Date Received : 04/19/05

## Carbon, Total Organic

Analysis Method : Walkley-Black  
 Test Notes :

Units : mg/Kg (ppm)  
 Basis : Dry

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
86-WOPT-556	K2502809-001	2000	900	1	04/25/05	ND	
86-WOPT-557	K2502809-002	2000	900	1	04/25/05	ND	
86-WOPT-558	K2502809-003	2000	900	1	04/25/05	ND	
86-WOPT-559	K2502809-004	2000	900	1	04/25/05	ND	
86-WOPT-1059	K2502809-005	2000	900	1	04/25/05	ND	
86-WOPT-1060	K2502809-006	2000	900	1	04/25/05	ND	
86-WOPT-1061	K2502809-007	2000	900	1	04/25/05	ND	
86-WOPT-1062	K2502809-008	2000	900	1	04/25/05	1160	J
86-WOPT-1063	K2502809-009	2000	900	1	04/25/05	1540	J
Method Blank	K2502809-MB	2000	900	1	04/25/05	ND	

00010

**Laboratory Data Consultants, Inc.**  
**Data Validation Report**

**Project/Site Name:** Moffett Air Field, Building 88, CTO 86

**Collection Date:** April 15, 2005

**LDC Report Date:** May 26, 2005

**Matrix:** Soil/Water

**Parameters:** Volatiles

**Validation Level:** EPA Level III & IV

**Laboratory:** APPL, Inc.

**Sample Delivery Group (SDG):** 47163

**Sample Identification**

86-WOPT-556  
86-WOPT-556DL  
86-WOPT-557  
86-WOPT-558\*\*  
86-WOPT-559  
86-WOPT-559DL  
86-WOPT-560  
86-WOPT-1059\*\*  
86-WOPT-1060  
86-WOPT-1061  
86-WOPT-1062  
86-WOPT-1063  
86-WOPT-1064  
86-WOPT-556MS  
86-WOPT-556MSD

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 13 soil samples and 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals with the following exceptions:

Sample	Compound	Total Time From BFB Tuning Until Analysis	Required Analysis Time (in Hours) From BFB Tuning Until Analysis	Flag	A or P
86-WOPT-556MSD	All TCL compounds	12 hrs. 5 mins.	12 hrs.	None	P

All ion abundance requirements were met.

## III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 15.0% for each individual compound and less than or equal to 30.0% for calibration check compounds (CCCs).

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination ( $r^2$ ) was greater than or equal to 0.990.

Average relative response factors (RRF) for all system performance check compounds (SPCCs) were within method and validation criteria.

## IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 20.0% for all compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
4/15/05 (0415C21S)	2-Hexanone	22	86-WOPT-556 86-WOPT-557 86-WOPT-558** 86-WOPT-559 86-WOPT-1059** 86-WOPT-1060 86-WOPT-1061 86-WOPT-1062 86-WOPT-1063 86-WOPT-556MS 86-WOPT-556MSD 050415S	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A
	4-Methyl-2-pentanone	25			

All of the continuing calibration RRF values for all system performance check compounds (SPCCs) were within method and validation criteria.

#### V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

#### VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

#### VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Compound	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
86-WOPT-556MS/MSD (86-WOPT-556)	Chlorobenzene	-	-	30.3 (≤30)	J (all detects) UJ (all non-detects)	A
	Trichloroethene	-	-	67.8 (≤30)	J (all detects) UJ (all non-detects)	

#### VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

All internal standard areas and retention times were within QC limits.

## **XI. Target Compound Identifications**

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XII. Compound Quantitation and CRQLs**

All compound quantitation and CRQLs were within validation criteria with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
86-WOPT-556 86-WOPT-559	Trichloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	A

Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XIII. Tentatively Identified Compounds (TICs)**

Tentatively identified compounds were not reported by the laboratory.

## **XIV. System Performance**

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XV. Overall Assessment**

Data flags are summarized at the end of this report if data has been qualified.

## **XVI. Field Duplicates**

No field duplicates were identified in this SDG.



## **XVII. Field Blanks**

Samples 86-WOPT-560 and 86-WOPT-1064 were identified as equipment rinsates. No volatile contaminants were found in these blanks.

**Moffett Air Field, Building 88, CTO 86**  
**Volatiles - Data Qualification Summary - SDG 47163**

SDG	Sample	Compound	Flag	A or P	Reason
47163	86-WOPT-556 86-WOPT-557 86-WOPT-558** 86-WOPT-559 86-WOPT-1059** 86-WOPT-1060 86-WOPT-1061 86-WOPT-1062 86-WOPT-1063	2-Hexanone  4-Methyl-2-pentanone	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
47163	86-WOPT-556	Chlorobenzene  Trichloroethene	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicates (RPD)
47163	86-WOPT-556 86-WOPT-559	Trichloroethene	J (all detects)	A	Compound quantitation and CRGLs

**Moffett Air Field, Building 88, CTO 86**  
**Volatiles - Laboratory Blank Data Qualification Summary - SDG 47163**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Air Field, Building 88, CTO 86  
**Collection Date:** April 15, 2005  
**LDC Report Date:** May 26, 2005  
**Matrix:** Water  
**Parameters:** Volatiles  
**Validation Level:** EPA Level III & IV  
**Laboratory:** APPL, Inc.

**Sample Delivery Group (SDG):** 47163

**Sample Identification**

86-WOPT-551	86-WOPT-1058MS
86-WOPT-552**	86-WOPT-1058MSD
86-WOPT-552DL**	
86-WOPT-553	
86-WOPT-553DL	
86-WOPT-554	
86-WOPT-554DL	
86-WOPT-555	
86-WOPT-555DL	
86-WOPT-1053	
86-WOPT-1054**	
86-WOPT-1054DL**	
86-WOPT-1055	
86-WOPT-1055DL	
86-WOPT-1056	
86-WOPT-1056DL	
86-WOPT-1057	
86-WOPT-1057DL	
86-WOPT-1058	
86-WOPT-1058DL	

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 22 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Contract Laboratory Program Statement of Work (SOW) OLM04.2 for Volatiles.

This review follows USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999); the following subsections correlate to the above guidelines.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals with the following exceptions:

Sample	Compound	Total Time From BFB Tuning Until Analysis	Required Analysis Time (in Hours) From BFB Tuning Until Analysis	Flag	A or P
86-WOPT-1058MSD	All TCL compounds	12 hrs. 8 mins.	12 hrs.	None	P

All ion abundance requirements were met.

## III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 30.0% for all compounds with the following exceptions:

Date	Compound	%RSD	Associated Samples	Flag	A or P
4/12/05	Chloroethane	32	86-WOPT-551	J (all detects)	A
	Acetone	40	86-WOPT-552**	UJ (all non-detects)	
			86-WOPT-553	J (all detects)	
			86-WOPT-554	UJ (all non-detects)	
			86-WOPT-555		
			86-WOPT-1053		
			86-WOPT-1054**		
			86-WOPT-1055		
			86-WOPT-1056		
			86-WOPT-1057		
			86-WOPT-1058		
			86-WOPT-1058MS		
			86-WOPT-1058MSD		
			050415W		

Average relative response factors (RRF) for all volatile target compounds and system monitoring compounds were within validation criteria.

## IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 25.0% with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
4/15/05	Chloromethane Acetone 2-Hexanone 4-Methyl-2-pentanone	26 28 34 28	86-WOPT-551 86-WOPT-552** 86-WOPT-553 86-WOPT-554 86-WOPT-555 86-WOPT-1053 86-WOPT-1054** 86-WOPT-1055 86-WOPT-1056 86-WOPT-1057 86-WOPT-1058 86-WOPT-1058MS 86-WOPT-1058MSD 050415W	J (all detects) UJ (all non-detects)	A

All of the continuing calibration RRF values were within validation criteria.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the SOW. All surrogate recoveries (%R) were within QC limits.

## VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable.

Recalculated results confirm the reported results with the following exceptions:

Spike ID (Associated Samples)	Compound	Reported (RPD)	Recalculated (RPD)	Flag	A or P
86-WOPT-1058MS,MSD (86-WOPT-1058)	1,1-Dichloroethene	3.1	67	None	P

Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Compound	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
86-WOPT-1058MS/MSD (86-WOPT-1058)	1,1-Dichloroethene	-	-	67 ( $\leq 30$ )	J (all detects) UJ (all non-detects)	A

### VIII. Laboratory Control Samples (LCS)

Although laboratory control samples were not required by the method, laboratory control samples were reported by the laboratory. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

### IX. Regional Quality Assurance and Quality Control

Not applicable.

### X. Internal Standards

All internal standard areas and retention times were within QC limits.

### XI. Target Compound Identifications

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

### XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
86-WOPT-552** 86-WOPT-553 86-WOPT-1054** 86-WOPT-1058	cis-1,2-Dichloroethene Trichloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects)	A
86-WOPT-554 86-WOPT-555	1,1,2-Trichloro-1,2,2-trifluoroethane cis-1,2-Dichloroethene Tetrachloroethene Trichloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects) J (all detects) J (all detects)	A
86-WOPT-1055 86-WOPT-1056 86-WOPT-1057	cis-1,2-Dichloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	A

Raw data were not evaluated for the samples reviewed by Level III criteria.

### XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

### XIV. System Performance

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

### XV. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### XVI. Field Duplicates

Samples 86-WOPT-1055 and 86-WOPT-1056 and samples 86-WOPT-1055DL and 86-WOPT-1056DL were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	86-WOPT-1055	86-WOPT-1056	
1,1,2-Trichloro-1,2,2-trifluoroethane	1.9	1.7	11
1,1-Dichloroethane	19	18	5
1,1-Dichloroethene	26	24	8
cis-1,2-Dichloroethene	1100	1100	0
Tetrachloroethene	7.3	6.7	9
trans-1,2-Dichloroethene	6.6	5.9	11
Trichloroethene	54	51	6
Vinyl chloride	0.5U	0.78	Not calculable



Compound	Concentration (ug/L)		RPD
	86-WOPT-1055DL	86-WOPT-1056DL	
cis-1,2-Dichloroethene	1000	910	9

## XVII. Field Blanks

Samples 86-WOPT-551 and 86-WOPT-1053 were identified as trip blanks. No volatile contaminants were found in these blanks with the following exceptions:

Trip Blank ID	Compound	Concentration (ug/L)
86-WOPT-551	Methylene chloride	0.54
86-WOPT-1053	Methylene chloride	0.44

**Moffett Air Field, Building 88, CTO 86**  
**Volatiles - Data Qualification Summary - SDG 47163**

SDG	Sample	Compound	Flag	A or P	Reason
47163	86-WOPT-551 86-WOPT-552** 86-WOPT-553 86-WOPT-554 86-WOPT-555 86-WOPT-1053 86-WOPT-1054** 86-WOPT-1055 86-WOPT-1056 86-WOPT-1057 86-WOPT-1058	Chloroethane  Acetone	J (all detects) UJ (all non-detects)  J (all detects) UJ (all non-detects)	A	Initial calibration (%RSD)
47163	86-WOPT-551 86-WOPT-552** 86-WOPT-553 86-WOPT-554 86-WOPT-555 86-WOPT-1053 86-WOPT-1054** 86-WOPT-1055 86-WOPT-1056 86-WOPT-1057 86-WOPT-1058	Chloromethane Acetone 2-Hexanone 4-Methyl-2-pentanone	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
47163	86-WOPT-1058	1,1-Dichloroethene	None	P	Matrix spike/Matrix spike duplicates (RPD recalculation)
47163	86-WOPT-1058	1,1-Dichloroethene	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicates (RPD)
47163	86-WOPT-552** 86-WOPT-553 86-WOPT-1054** 86-WOPT-1058	cis-1,2-Dichloroethene Trichloroethene	J (all detects) J (all detects)	A	Compound quantitation and CRQLs
47163	86-WOPT-554 86-WOPT-555	1,1,2-Trichloro-1,2,2-trifluoroethane cis-1,2-Dichloroethene Tetrachloroethene Trichloroethene	J (all detects) J (all detects) J (all detects) J (all detects)	A	Compound quantitation and CRQLs
47163	86-WOPT-1055 86-WOPT-1056 86-WOPT-1057	cis-1,2-Dichloroethene	J (all detects)	A	Compound quantitation and CRQLs

**Moffett Air Field, Building 88, CTO 86**  
**Volatiles - Laboratory Blank Data Qualification Summary - SDG 47163**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.**  
**Data Validation Report**

**Project/Site Name:** Moffett Air Field, Building 88, CTO 86  
**Collection Date:** April 15, 2005  
**LDC Report Date:** May 31, 2005  
**Matrix:** Water  
**Parameters:** Metals  
**Validation Level:** EPA Level III & IV  
**Laboratory:** APPL, Inc.

**Sample Delivery Group (SDG):** 47163

**Sample Identification**

86-WOPT-552\*\*  
86-WOPT-553  
86-WOPT-553DL  
86-WOPT-554  
86-WOPT-554DL  
86-WOPT-555  
86-WOPT-555DL  
86-WOPT-1054\*\*  
86-WOPT-1054DL\*\*  
86-WOPT-1055  
86-WOPT-1055DL  
86-WOPT-1056  
86-WOPT-1056DL  
86-WOPT-1057  
86-WOPT-1057DL  
86-WOPT-1058  
86-WOPT-1058DL  
86-WOPT-1058MS  
86-WOPT-1058MSD

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 19 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 6010B for Metals. The metals analyzed were Calcium, Iron, Magnesium, Potassium, and Sodium.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

## III. Blanks

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Calcium	0.044 mg/L	All samples in SDG 47143

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or were significantly greater ( $>5X$  blank contaminants) than the concentrations found in the associated method blanks.

## IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

## V. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
86-WOPT-1058MS/MSD (86-WOPT-552** 86-WOPT-553 86-WOPT-554 86-WOPT-555 86-WOPT-1054** 86-WOPT-1055 86-WOPT-1055DL 86-WOPT-1056 86-WOPT-1057 86-WOPT-1058)	Iron	-	-	53 ( $\pm 20$ )	J (all detects) UJ (all non-detects)	A
86-WOPT-1058MS/MSD (86-WOPT-552** 86-WOPT-553 86-WOPT-554 86-WOPT-555 86-WOPT-1054** 86-WOPT-1055 86-WOPT-1056 86-WOPT-1057 86-WOPT-1058)	Potassium	-	122 (80-120)	-	J (all detects)	A

#### VI. Duplicate Sample Analysis

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

#### VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### VIII. Internal Standards

ICP-MS was not utilized in this SDG.

#### IX. Furnace Atomic Absorption QC

Graphite furnace atomic absorption was not utilized in this SDG.

#### X. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met.

## XI. Sample Result Verification

All sample result verification met validation criteria with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
86-WOPT-553 86-WOPT-554 86-WOPT-1054** 86-WOPT-1057 86-WOPT-1058	Calcium Magnesium	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects)	A
86-WOPT-555 86-WOPT-1056	Calcium	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	A
86-WOPT-1055	Calcium Iron Magnesium	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects) J (all detects)	A

Raw data were not evaluated for samples reviewed by Level III criteria.

## XII. Overall Assessment of Data

Data flags have been summarized at the end of this report.

## XIII. Field Duplicates

Samples 86-WOPT-1055 and 86-WOPT-1056, samples 86-WOPT-1055DL and 86-WOPT-1056DL, and samples 86-WOPT-1055DL and 86-WOPT-1056 were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:

Compound	Concentration (mg/L)		RPD
	86-WOPT-1055	86-WOPT-1056	
Calcium	470	286	49
Iron	41.0	29.2	34
Magnesium	125	93.1	29
Potassium	9.3	7.7	19
Sodium	46.1	42.4	8

Compound	Concentration (mg/L)		RPD
	86-WOPT-1055DL	88-WOPT-1058DL	
Calcium	502	305	49

Compound	Concentration (mg/L)		RPD
	86-WOPT-1055DL	86-WOPT-1056	
Iron	43.9	29.2	40
Magnesium	134	93.1	36

#### XIV. Field Blanks

No field blanks were identified in this SDG.



**Moffett Air Field, Building 88, CTO 86**  
**Metals - Data Qualification Summary - SDG 47163**

SDG	Sample	Analyte	Flag	A or P	Reason
47163	86-WOPT-552** 86-WOPT-553 86-WOPT-554 86-WOPT-555 86-WOPT-1054** 86-WOPT-1055 86-WOPT-1055DL 86-WOPT-1056 86-WOPT-1057 86-WOPT-1058	Iron	J (all detects) JJ (all non-detects)	A	Matrix spike/Matrix spike duplicates (RPD)
47163	86-WOPT-552** 86-WOPT-553 86-WOPT-554 86-WOPT-555 86-WOPT-1054** 86-WOPT-1055 86-WOPT-1056 86-WOPT-1057 86-WOPT-1058	Potassium	J (all detects)	A	Matrix spike/Matrix spike duplicates (%R)
47163	86-WOPT-553 86-WOPT-554 86-WOPT-1054** 86-WOPT-1057 86-WOPT-1058	Calcium Magnesium	J (all detects) J (all detects)	A	Sample result verification
47163	86-WOPT-555 86-WOPT-1056	Calcium	J (all detects)	A	Sample result verification
47163	86-WOPT-1055	Calcium Iron Magnesium	J (all detects) J (all detects) J (all detects)	A	Sample result verification

**Moffett Air Field, Building 88, CTO 86**  
**Metals - Laboratory Blank Data Qualification Summary - SDG 47163**

No Sample Data Qualified in this SDG

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Moffett Air Field, Building 88, CTO 86

**Collection Date:** April 15, 2005

**LDC Report Date:** May 26, 2005

**Matrix:** Soil/Water

**Parameters:** Wet Chemistry

**Validation Level:** EPA Level III & IV

**Laboratory:** APPL, Inc./Columbia Analytical Services, Inc.

**Sample Delivery Group (SDG):** 47163/K2502809

### Sample Identification

86-WOPT-552**	86-WOPT-557
86-WOPT-552DL**	86-WOPT-558**
86-WOPT-553	86-WOPT-559
86-WOPT-553DL	86-WOPT-1059**
86-WOPT-554	86-WOPT-1060
86-WOPT-554DL	86-WOPT-1061
86-WOPT-555	86-WOPT-1062
86-WOPT-555DL	86-WOPT-1063
86-WOPT-560	86-WOPT-1058MS
86-WOPT-1054**	86-WOPT-1058MSD
86-WOPT-1054DL**	86-WOPT-556DUP
86-WOPT-1055	
86-WOPT-1055DL	
86-WOPT-1056	
86-WOPT-1056DL	
86-WOPT-1057	
86-WOPT-1057DL	
86-WOPT-1058	
86-WOPT-1058DL	
86-WOPT-556	

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 10 soil samples and 21 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 300.0 for Chloride, Nitrate, Nitrite, and Sulfate, EPA Method 310.1 for Carbonate and Bicarbonate, and Walkley-Black method and EPA SW 846 Method 9060 for Total Organic Carbon.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section IX.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met with the following exceptions:

Sample	Analyte	Total Time From Sample Collection Until Analysis	Required Holding Time From Sample Collection Until Analysis	Flag	A or P
86-WOPT-552** 86-WOPT-553 86-WOPT-554	Nitrate Nitrite	78.5 hours 78.5 hours	48 hours 48 hours	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	P
86-WOPT-555	Nitrate Nitrite	78.25 hours 78.25 hours	48 hours 48 hours	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	P
86-WOPT-1054** 86-WOPT-1058	Nitrate Nitrite	79.75 hours 79.75 hours	48 hours 48 hours	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	P
86-WOPT-1055 86-WOPT-1056	Nitrate Nitrite	80 hours 80 hours	48 hours 48 hours	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	P
86-WOPT-1057	Nitrate Nitrite	80.25 hours 80.25 hours	48 hours 48 hours	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	P
86-WOPT-1058MS	Nitrate Nitrite	82.75 hours 82.75 hours	48 hours 48 hours	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	P
86-WOPT-1058MSD	Nitrate Nitrite	83 hours 83 hours	48 hours 48 hours	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	P

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

### a. Initial Calibration

All criteria for the initial calibration of each method were met.

## b. Calibration Verification

Calibration verification frequency and analysis criteria were met for each method when applicable.

## III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the method blanks.

## IV. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
86-WOPT-1058MS/MSD 86-WOPT-552** 86-WOPT-552DL** 86-WOPT-553 86-WOPT-553DL 86-WOPT-554 86-WOPT-554DL 86-WOPT-555 86-WOPT-555DL 86-WOPT-1054** 86-WOPT-1054DL** 86-WOPT-1055 86-WOPT-1055DL 86-WOPT-1056 86-WOPT-1056DL 86-WOPT-1057 86-WOPT-1057DL 86-WOPT-1058 86-WOPT-1058DL	Sulfate	78 (80-120)	78 (80-120)	-	J (all detects) UJ (all non-detects)	A

## V. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## VI. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VII. Sample Result Verification

All sample result verification met validation criteria with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
86-WOPT-552** 86-WOPT-553 86-WOPT-554 86-WOPT-555 86-WOPT-1054** 86-WOPT-1055 86-WOPT-1056 86-WOPT-1057 86-WOPT-1058	Sulfate	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	A

Raw data were not evaluated for the samples reviewed by Level III criteria.

### VIII. Overall Assessment of Data

Data flags are summarized at the end of this report.

### IX. Field Duplicates

Samples 86-WOPT-1055 and 86-WOPT-1056 and samples 86-WOPT-1055DL and 86-WOPT-1056DL were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration (ug/L)		RPD
	86-WOPT-1055	86-WOPT-1056	
Chloride	31200	31500	1
Nitrate	2660	2440	9
Sulfate	264000	265000	0

Analyte	Concentration (mg/L)		RPD
	86-WOPT-1055	86-WOPT-1056	
Bicarbonate	417	416	0

Analyte	Concentration (ug/L)		RPD
	86-WOPT-1055DL	86-WOPT-1056DL	
Sulfate	223000	221000	1

## X. Field Blanks

Sample 86-WOPT-560 was identified as an equipment rinsate. No contaminant concentrations were found in this blank with the following exceptions:

Equipment Rinsate ID	Analyte	Concentration (mg/L)
86-WOPT-560	Total organic carbon	3.3

**Moffett Air Field, Building 88, CTO 86**  
**Wet Chemistry - Data Qualification Summary - SDG 47163/K2502809**

SDG	Sample	Analyte	Flag	A or P	Reason
47163/ K2502809	86-WOPT-552** 86-WOPT-553 86-WOPT-554 86-WOPT-555 86-WOPT-1054** 86-WOPT-1055 86-WOPT-1056 86-WOPT-1057 86-WOPT-1058	Nitrate  Nitrite	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	P	Technical holding times
47163/ K2502809	86-WOPT-552** 86-WOPT-552DL** 86-WOPT-553 86-WOPT-553DL 86-WOPT-554 86-WOPT-554DL 86-WOPT-555 86-WOPT-555DL 86-WOPT-1054** 86-WOPT-1054DL** 86-WOPT-1055 86-WOPT-1055DL 86-WOPT-1056 86-WOPT-1056DL 86-WOPT-1057 86-WOPT-1057DL 86-WOPT-1058 86-WOPT-1058DL	Sulfate	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicates (%R)
47163/ K2502809	86-WOPT-552** 86-WOPT-553 86-WOPT-554 86-WOPT-555 86-WOPT-1054** 86-WOPT-1055 86-WOPT-1056 86-WOPT-1057 86-WOPT-1058	Sulfate	J (all detects)	A	Sample result verification

**Moffett Air Field, Building 88, CTO 86**  
**Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 47163/K2502809**

No Sample Data Qualified in this SDG





## CHAIN-OF-CUSTODY RECORD

Y	TIME	COMPANY	10 DAY TOT ON TOL SAMPLE CONDITION (ON RECEIPT FROM LABORATORY) TEMPERATURE: _____ SAMPLE CONDITION: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN COOLER SEAL: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN
ISSUED BY (Signature)	DATE	RECEIVED BY (Signature)	
Y	TIME	COMPANY	

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management

0040192-121



**TETRA TECH**  
1230 Columbia Street, Suite 400  
San Diego, CA 92101 (619) 254-6696

# CHAIN-OF-CUSTODY RECORD

NUMBER 10367

PURCHASE ORDER NO.		PROJECT NO.		PROJECT CONTACT PHONE NUMBER		PROJECT CONTACT		ANALYSES REQUIRED		LABORATORY NAME		Project Information Section	
SAMPLE ID	DATE COLLECTED	TIME COLLECTED	NO OF CONTAINERS	LEVEL	T	T	NO OF CONTAINERS	LEVEL	T	T	COMMENTS	LOCATION	DEPTH
				3	4	5							START
													END
Building 88	05/18/05		3	X	2	24	X					Tri-T Blank	-
Modell Airtel CH	10/10/05	0901	3	X	2	24	X					CPT-88-12	17 19 20
Modell Airtel CH	10/10/05	1006	5	X	2	24	X					CPT-88-12	24 26 29
Modell Airtel CH	10/10/05	1029	5	X	2	24	X					CPT-88-12	31 32 33
Modell Airtel CH	10/10/05	1043	5	X	2	24	X					CPT-88-12	34 35 36
Modell Airtel CH	10/10/05	1124	5	X	2	24	X					CPT-88-12	17 18 19
Modell Airtel CH	10/10/05	1344	5	X	2	24	X					CPT-88-12	24 25 26
Modell Airtel CH	10/10/05	1358	5	X	2	24	X					CPT-88-12	31 32 33
Modell Airtel CH	10/10/05	1412	4	X	2	24	X					CPT-88-12	34 35 36
Modell Airtel CH	10/10/05	1420	5	X	2	24	X					CPT-88-12	17 18 19
Modell Airtel CH	10/10/05	1451	5	X	2	24	X					CPT-88-12	24 25 26
Modell Airtel CH	10/10/05	1523	5	X	2	24	X					CPT-88-12	31 32 33
Modell Airtel CH	10/10/05	1537	5	X	2	24	X					CPT-88-12	34 35 36
Modell Airtel CH	10/10/05	1551	5	X	2	24	X					CPT-88-12	17 18 19
Modell Airtel CH	10/10/05	1600	5	X	2	24	X					CPT-88-12	24 25 26
Modell Airtel CH	10/10/05	1614	5	X	2	24	X					CPT-88-12	31 32 33
Modell Airtel CH	10/10/05	1628	5	X	2	24	X					CPT-88-12	34 35 36
Modell Airtel CH	10/10/05	1642	5	X	2	24	X					CPT-88-12	17 18 19
Modell Airtel CH	10/10/05	1656	5	X	2	24	X					CPT-88-12	24 25 26
Modell Airtel CH	10/10/05	1670	5	X	2	24	X					CPT-88-12	31 32 33
Modell Airtel CH	10/10/05	1684	5	X	2	24	X					CPT-88-12	34 35 36
Modell Airtel CH	10/10/05	1698	5	X	2	24	X					CPT-88-12	17 18 19
Modell Airtel CH	10/10/05	1712	5	X	2	24	X					CPT-88-12	24 25 26
Modell Airtel CH	10/10/05	1726	5	X	2	24	X					CPT-88-12	31 32 33
Modell Airtel CH	10/10/05	1740	5	X	2	24	X					CPT-88-12	34 35 36
Modell Airtel CH	10/10/05	1754	5	X	2	24	X					CPT-88-12	17 18 19
Modell Airtel CH	10/10/05	1768	5	X	2	24	X					CPT-88-12	24 25 26
Modell Airtel CH	10/10/05	1782	5	X	2	24	X					CPT-88-12	31 32 33
Modell Airtel CH	10/10/05	1796	5	X	2	24	X					CPT-88-12	34 35 36
Modell Airtel CH	10/10/05	1810	5	X	2	24	X					CPT-88-12	17 18 19
Modell Airtel CH	10/10/05	1824	5	X	2	24	X					CPT-88-12	24 25 26
Modell Airtel CH	10/10/05	1838	5	X	2	24	X					CPT-88-12	31 32 33
Modell Airtel CH	10/10/05	1852	5	X	2	24	X					CPT-88-12	34 35 36
Modell Airtel CH	10/10/05	1866	5	X	2	24	X					CPT-88-12	17 18 19
Modell Airtel CH	10/10/05	1880	5	X	2	24	X					CPT-88-12	24 25 26
Modell Airtel CH	10/10/05	1894	5	X	2	24	X					CPT-88-12	31 32 33
Modell Airtel CH	10/10/05	1908	5	X	2	24	X					CPT-88-12	34 35 36
Modell Airtel CH	10/10/05	1922	5	X	2	24	X					CPT-88-12	17 18 19
Modell Airtel CH	10/10/05	1936	5	X	2	24	X					CPT-88-12	24 25 26
Modell Airtel CH	10/10/05	1950	5	X	2	24	X					CPT-88-12	31 32 33
Modell Airtel CH	10/10/05	1964	5	X	2	24	X					CPT-88-12	34 35 36
Modell Airtel CH	10/10/05	1978	5	X	2	24	X					CPT-88-12	17 18 19
Modell Airtel CH	10/10/05	1992	5	X	2	24	X					CPT-88-12	24 25 26
Modell Airtel CH	10/10/05	2006	5	X	2	24	X					CPT-88-12	31 32 33
Modell Airtel CH	10/10/05	2020	5	X	2	24	X					CPT-88-12	34 35 36
Modell Airtel CH	10/10/05	2034	5	X	2	24	X					CPT-88-12	17 18 19
Modell Airtel CH	10/10/05	2048	5	X	2	24	X					CPT-88-12	24 25 26
Modell Airtel CH	10/10/05	2062	5	X	2	24	X					CPT-88-12	31 32 33
Modell Airtel CH	10/10/05	2076	5	X	2	24	X					CPT-88-12	34 35 36
Modell Airtel CH	10/10/05	2090	5	X	2	24	X					CPT-88-12	17 18 19
Modell Airtel CH	10/10/05	2104	5	X	2	24	X					CPT-88-12	24 25 26
Modell Airtel CH	10/10/05	2118	5	X	2	24	X					CPT-88-12	31 32 33
Modell Airtel CH	10/10/05	2132	5	X	2	24	X					CPT-88-12	34 35 36
Modell Airtel CH	10/10/05	2146	5	X	2	24	X					CPT-88-12	17 18 19
Modell Airtel CH	10/10/05	2160	5	X	2	24	X					CPT-88-12	24 25 26
Modell Airtel CH	10/10/05	2174	5	X	2	24	X					CPT-88-12	31 32 33
Modell Airtel CH	10/10/05	2188	5	X	2	24	X					CPT-88-12	34 35 36
Modell Airtel CH	10/10/05	2202	5	X	2	24	X					CPT-88-12	17 18 19
Modell Airtel CH	10/10/05	2216	5	X	2	24	X					CPT-88-12	24 25 26
Modell Airtel CH	10/10/05	2230	5	X	2	24	X					CPT-88-12	31 32 33
Modell Airtel CH	10/10/05	2244	5	X	2	24	X					CPT-88-12	34 35 36
Modell Airtel CH	10/10/05	2258	5	X	2	24	X					CPT-88-12	17 18 19
Modell Airtel CH	10/10/05	2272	5	X	2	24	X					CPT-88-12	24 25 26
Modell Airtel CH	10/10/05	2286	5	X	2	24	X					CPT-88-12	31 32 33
Modell Airtel CH	10/10/05	2300	5	X	2	24	X					CPT-88-12	34 35 36
Modell Airtel CH	10/10/05	2314	5	X	2	24	X					CPT-88-12	17 18 19
Modell Airtel CH	10/10/05	2328	5	X	2	24	X					CPT-88-12	24 25 26
Modell Airtel CH	10/10/05	2342	5	X	2	24	X					CPT-88-12	31 32 33
Modell Airtel CH	10/10/05	2356	5	X	2	24	X					CPT-88-12	34 35 36
Modell Airtel CH	10/10/05	2370	5	X	2	24	X					CPT-88-12	17 18 19
Modell Airtel CH	10/10/05	2384	5	X	2	24	X					CPT-88-12	24 25 26
Modell Airtel CH	10/10/05	2398	5	X	2	24	X					CPT-88-12	31 32 33
Modell Airtel CH	10/10/05	2412	5	X	2	24	X					CPT-88-12	34 35 36
Modell Airtel CH	10/10/05	2426	5	X	2	24	X					CPT-88-12	17 18 19
Modell Airtel CH	10/10/05	2440	5	X	2	24	X					CPT-88-12	24 25 26
Modell Airtel CH	10/10/05	2454	5	X	2	24	X					CPT-88-12	31 32 33
Modell Airtel CH	10/10/05	2468	5	X	2	24	X					CPT-88-12	34 35 36
Modell Airtel CH	10/10/05	2482	5	X	2	24	X					CPT-88-12	17 18 19
Modell Airtel CH	10/10/05	2496	5	X	2	24	X					CPT-88-12	24 25 26
Modell Airtel CH	10/10/05	2510	5	X	2	24	X					CPT-88-12	31 32 33
Modell Airtel CH	10/10/05	2524	5	X	2	24	X					CPT-88-12	34 35 36
Modell Airtel CH	10/10/05	2538	5	X	2	24	X					CPT-88-12	17 18 19
Modell Airtel CH	10/10/05	2552	5	X	2	24	X					CPT-88-12	24 25 26
Modell Airtel CH	10/10/05	2566	5	X	2	24	X					CPT-88-12	31 32 33
Modell Airtel CH	10/10/05	2580	5	X	2	24	X					CPT-88-12	34 35 36
Modell Airtel CH	10/10/05	2594	5	X	2	24	X					CPT-88-12	17 18 19
Modell Airtel CH	10/10/05	2608	5	X	2	24	X					CPT-88-12	24 25 26
Modell Airtel CH	10/10/05	2622	5	X	2	24	X					CPT-88-12	31 32 33
Modell Airtel CH	10/10/05	2636	5	X	2	24	X					CPT-88-12	34 35 36
Modell Airtel CH	10/10/05	2650	5	X	2	24	X					CPT-88-12	17 18 19
Modell Airtel CH	10/10/05	2664	5	X	2	24	X					CPT-88-12	24 25 26
Modell Airtel CH	10/10/05	2678	5	X	2	24	X					CPT-88-12	31 32 33
Modell Airtel CH	10/10/05	2692	5	X	2	24	X					CPT-88-12	34 35 36
Modell Airtel CH	10/10/05	2706	5	X	2	24	X					CPT-88-12	17 18 19
Modell Airtel CH	10/10/05	2720	5	X	2	24	X					CPT-88-12	24 25 26

Data Validation Package  
for  
Moffett Air Field, WATS Building 88, CTO 86  
ARF 47173

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## Case Narrative

ARF: 47173

Project: 1990.086D WATS Bldg 88 Moffett Airfield

State Certification Number: CA1312

Results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

### Sample Receipt Information:

The sample group was received April 18, 2005, at 4.5°C and 3.5°C. The samples were assigned Analytical Request Form (ARF) number 47173. The sample numbers and requested analyses were compared to the chains of custody. The soil TOC analysis was sub-contracted to Columbia Analytical Laboratory. No exception was noted.

Sample Table

CLIENT ID	APPL ID	Matrix	Date Sampled	Date Received
86-WOPT-561	AX17939	WATER	4/18/05	4/18/05
86-WOPT-562	AX17940	SOIL	4/18/05	4/18/05
86-WOPT-563	AX17941	SOIL	4/18/05	4/18/05
86-WOPT-564	AX17942	SOIL	4/18/05	4/18/05
86-WOPT-565	AX17943	SOIL	4/18/05	4/18/05
86-WOPT-566	AX17944	SOIL	4/18/05	4/18/05
86-WOPT-567	AX17945	SOIL	4/18/05	4/18/05
86-WOPT-568	AX17946	WATER	4/18/05	4/18/05
86-WOPT-1065	AX17947	WATER	4/18/05	4/18/05
86-WOPT-1066	AX17948	WATER	4/18/05	4/18/05
86-WOPT-1067	AX17949	WATER	4/18/05	4/18/05
86-WOPT-1068	AX17950	WATER	4/18/05	4/18/05
86-WOPT-1069	AX17951	WATER	4/18/05	4/18/05
86-WOPT-1070	AX17952	SOIL	4/18/05	4/18/05
86-WOPT-1071	AX17953	SOIL	4/18/05	4/18/05
86-WOPT-1072	AX17954	SOIL	4/18/05	4/18/05
86-WOPT-1073	AX17955	SOIL	4/18/05	4/18/05
86-WOPT-1074	AX17956	SOIL	4/18/05	4/18/05
86-WOPT-1075	AX17957	WATER	4/18/05	4/18/05

# **EPA Method 8260B and CLP Volatiles Volatile Organic Analysis**

## **Sample Preparation:**

The samples were purged according to EPA method 5030B, 5035, and CLP. All holding times were met.

## **Sample Analysis Information:**

The samples were analyzed according to the method using a Hewlett Packard Gas Chromatograph with a mass spectrometer detector. cis-1,2-Dichloroethene was reported in addition to Tetrachloroethene for the dilution for sample 86-WOPT-563 due to a significant difference when compared to the undiluted result.

## **Quality Control/Assurance**

### **Calibrations:**

Initial and continuing calibrations were performed according to the method. For the continuing calibration verification performed on Chico file ID: 0418C33S.D, 2-Hexanone had a 26%D. For the continuing calibration performed on Max file ID: 0418M24W.D, Acetone had a 21%D. All other calibration criteria were met.

### **Blanks:**

No target analyte was detected above the reporting limits in the method blanks.

### **Spikes:**

Laboratory Control Spikes (LCS) were used for quality assurance. A second-source standard was used for the LCS. All spike and second-source criteria were met.

No MS/MSD analyses were requested by the client.

### **Surrogates**

All surrogate recoveries were within control limits.

### **Tuning:**

The instrument was tuned using BFB. All method criteria were met.

### **Internal Standards**

The internal standard area counts were compared to the mid-point of the initial calibration according to method 8260. Samples 86-WOPT-562 and 86-WOPT-563 recovered the 1,4-Dichlorobenzene-d4 below the lower control limit. Sample 86-WOPT-562 and 86-WOPT-563 were re-analyzed at a 100 to 1 dilution. The compounds that exceeded linear calibration range as well as the compounds calculated using the low IS are reported on a second form 1 for these two samples. The compounds that are calculated using the IS are 1,1,2,2-Tetrachloroethane and 4-Methyl-2-Pentanone. The internal standard area counts were compared to the continuing calibration according to CLP. All method criteria were met.

## **Summary:**

No additional problem was encountered.

# **EPA Methods 6010B**

## **Metals**

### **Digestion Information:**

The water was digested according to EPA methods 3010A. No exceptions were encountered. All holding times were met.

### **Analysis Information:**

#### **Samples:**

The sample was analyzed for dissolved metals according to EPA method 6010B using a Perkin Elmer Optima 4300DV.

#### **Calibrations:**

Calibrations were performed according to the methods for the initial calibration and the initial calibration verification. The initial calibration verification is prepared from a second source standard.

#### **Blanks:**

Calcium, Magnesium, and Sodium were detected below the reporting limit but above the MDL in the 050425A method blank at 0.030mg/L, 0.016mg/L, and 0.33mg/L respectively. No other target metal was detected above the reporting limits in the method blank.

#### **Spikes:**

Laboratory Control Spikes (LCS/LCSD) were used for quality assurance. LCS recoveries were within acceptance limits. No sample was designated for MS/MSD analysis.

### **Summary:**

No analytical exception is noted. All data are acceptable.

# **EPA Methods 300.0, 310.1 and 9060A**

## **Anions, Carbonates & Bi-carbonates and Total Organic Carbon**

### **Sample Preparation Information:**

A Dionex DX500 ion chromatograph was used for the EPA 300.0 analysis. The TOC was analyzed using a Shimadzu TOC-5050A instrument. The samples were screened down to the MDL.

### **Analysis Information:**

#### **Samples:**

The sample was analyzed according to the methods. A Dionex DX500 ion chromatograph was used for the EPA 300.0 analysis.

#### **Calibrations:**

Calibrations were performed according to the methods for the initial calibration and the initial calibration verification. The initial calibration verification is prepared from a second source standard.

#### **Blanks:**

No target analyte was detected above the reporting limits in the method blanks.

#### **Spikes:**

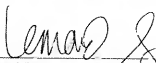
Laboratory Control Spikes (LCS/LCSD) and Sample Duplicates were used for quality assurance. An Bicarbonate MS was performed on sample 86-WOPT-1069. Acceptance criteria were met.

### **Summary:**

No analytical exception is noted.

## CERTIFICATION

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the hard copy has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

 5/17/05  
\_\_\_\_\_  
Leonard Fong, Ph.D. Laboratory Director / Date



**EPA 8260B**

Tetra Tech FW, Inc.  
1340 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 38 Moffett Airfield

ARF: 47173

Sample ID: 86-WOPT-561

APPL ID: AX17939

Sample Collection Date: 4/18/05

QCG: S86TTW-050418BM-8534

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/19/05	4/19/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/19/05	4/19/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/19/05	4/19/05
EPA 8260B	1,1-Dichloroethane	Not detected	0.5	0.19	ug/L	4/19/05	4/19/05
EPA 8260B	1,1-Dichloroethene	Not detected	0.5	0.30	ug/L	4/19/05	4/19/05
EPA 8260B	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/19/05	4/19/05
EPA 8260B	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/19/05	4/19/05
EPA 8260B	2-Butanone	Not detected	5	0.6	ug/L	4/19/05	4/19/05
EPA 8260B	2-Hexanone	Not detected	5	0.92	ug/L	4/19/05	4/19/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/19/05	4/19/05
EPA 8260B	Acetone	6.5	5	0.95	ug/L	4/19/05	4/19/05
EPA 8260B	Benzene	Not detected	0.5	0.16	ug/L	4/19/05	4/19/05
EPA 8260B	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/19/05	4/19/05
EPA 8260B	Bromoform	Not detected	0.5	0.14	ug/L	4/19/05	4/19/05
EPA 8260B	Bromomethane	Not detected	1	0.24	ug/L	4/19/05	4/19/05
EPA 8260B	Carbon disulfide	Not detected	0.5	0.2	ug/L	4/19/05	4/19/05
EPA 8260B	Carbon tetrachloride	Not detected	0.5	0.10	ug/L	4/19/05	4/19/05
EPA 8260B	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/19/05	4/19/05
EPA 8260B	Chloroethane	Not detected	0.5	0.21	ug/L	4/19/05	4/19/05
EPA 8260B	Chloroform	Not detected	0.5	0.16	ug/L	4/19/05	4/19/05
EPA 8260B	Chloromethane	Not detected	0.5	0.31	ug/L	4/19/05	4/19/05
EPA 8260B	cis-1,2-Dichloroethene	Not detected	0.5	0.16	ug/L	4/19/05	4/19/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/19/05	4/19/05
EPA 8260B	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/19/05	4/19/05
EPA 8260B	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/19/05	4/19/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/19/05	4/19/05
EPA 8260B	Methylene chloride	0.61 J	5	0.35	ug/L	4/19/05	4/19/05
EPA 8260B	Styrene	Not detected	0.5	0.25	ug/L	4/19/05	4/19/05
EPA 8260B	Tetrachloroethene	Not detected	0.5	0.15	ug/L	4/19/05	4/19/05
EPA 8260B	Toluene	Not detected	0.5	0.17	ug/L	4/19/05	4/19/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	0.5	0.19	ug/L	4/19/05	4/19/05

J = Estimated value, below quantitation limit.

Run #: 0418M39  
Instrument: Max  
Sequence: M050414  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:25:02 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 98 Moffett Airfield

ARF: 47173

Sample ID: 86-WOPT-561

APPL ID: AX17939

Sample Collection Date: 4/13/05

QCG: S86TTW-050418BM-8584

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/19/05	4/19/05
EPA 8260B	Trichloroethene	Not detected	0.5	0.16	ug/L	4/19/05	4/19/05
EPA 8260B	Vinyl Acetate	Not detected	5	0.31	ug/L	4/19/05	4/19/05
EPA 8260B	Vinyl chloride	Not detected	0.5	0.23	ug/L	4/19/05	4/19/05
EPA 8260B	Xylenes	Not detected	1.5	0.19	ug/L	4/19/05	4/19/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	107	62-139		%	4/19/05	4/19/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	91.1	75-125		%	4/19/05	4/19/05
EPA 8260B	Surrogate recovery: Toluene-d8	99.5	75-125		%	4/19/05	4/19/05

J = Estimated value, below quantitation limit.

Run #: 0418M39  
Instrument: Max  
Sequence: M050414  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:25:02 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

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Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

ARF: 47173

Sample ID: 86-WOPT-562

APPL ID: AX17940

Sample Collection Date: 4/18/05

QCG: S86TTS-050417BC-85849

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 23.5 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	7	1.1	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	7	1.6	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	7	0.63	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,1-Dichloroethane	5.1 J	7	1.5	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,1-Dichloroethene	5.8 J	7	1.0	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,2-Dichloroethane	Not detected	7	0.94	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,2-Dichloropropane	Not detected	7	0.81	ug/Kg	4/19/05	4/19/05
EPA 8260B	2-Butanone	Not detected	65	0.93	ug/Kg	4/19/05	4/19/05
EPA 8260B	2-Hexanone	Not detected	65	0.21	ug/Kg	4/19/05	4/19/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	65	1.2	ug/Kg	4/19/05	4/19/05
EPA 8260B	Acetone	Not detected	130	3.7	ug/Kg	4/19/05	4/19/05
EPA 8260B	Benzene	Not detected	7	0.82	ug/Kg	4/19/05	4/19/05
EPA 8260B	Bromodichloromethane	Not detected	7	0.90	ug/Kg	4/19/05	4/19/05
EPA 8260B	Bromoform	Not detected	7	1.0	ug/Kg	4/19/05	4/19/05
EPA 8260B	Bromomethane	Not detected	13	2.1	ug/Kg	4/19/05	4/19/05
EPA 8260B	Carbon disulfide	Not detected	7	1.4	ug/Kg	4/19/05	4/19/05
EPA 8260B	Carbon tetrachloride	Not detected	7	1.0	ug/Kg	4/19/05	4/19/05
EPA 8260B	Chlorobenzene	Not detected	7	0.64	ug/Kg	4/19/05	4/19/05
EPA 8260B	Chloroethane	Not detected	7	2.0	ug/Kg	4/19/05	4/19/05
EPA 8260B	Chloroform	Not detected	7	1.9	ug/Kg	4/19/05	4/19/05
EPA 8260B	Chloromethane	Not detected	7	2.4	ug/Kg	4/19/05	4/19/05
EPA 8260B	cis-1,2-Dichloroethene	700	7	1.4	ug/Kg	4/19/05	4/19/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	7	0.61	ug/Kg	4/19/05	4/19/05
EPA 8260B	Dibromochloromethane	Not detected	7	1.1	ug/Kg	4/19/05	4/19/05
EPA 8260B	Ethylbenzene	Not detected	7	0.84	ug/Kg	4/19/05	4/19/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	7	1.2	ug/Kg	4/19/05	4/19/05
EPA 8260B	Methylene chloride	Not detected	65	6.0	ug/Kg	4/19/05	4/19/05
EPA 8260B	Styrene	Not detected	7	0.90	ug/Kg	4/19/05	4/19/05
EPA 8260B	Tetrachloroethene	7000 E	7	0.71	ug/Kg	4/19/05	4/19/05
EPA 8260B	Toluene	Not detected	7	0.85	ug/Kg	4/19/05	4/19/05
EPA 8260B	trans-1,2-Dichloroethene	4.6 J	7	1.8	ug/Kg	4/19/05	4/19/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0418C43  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed 4/25/05 5:25:02 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47173

Sample ID: 86-WOPT-562

APFL ID: AX17940

Sample Collection Date: 4/18/05

QCG: S86TTS-050417BC-85849

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	7	0.56	ug/Kg	4/19/05	4/19/05
EPA 8260B	Trichloroethene	770	7	0.93	ug/Kg	4/19/05	4/19/05
EPA 8260B	Vinyl Acetate	Not detected	65	1.3	ug/Kg	4/19/05	4/19/05
EPA 8260B	Vinyl chloride	Not detected	7	2.2	ug/Kg	4/19/05	4/19/05
EPA 8260B	Xylenes	Not detected	20	0.89	ug/Kg	4/19/05	4/19/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	114	52-149		%	4/19/05	4/19/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	97.6	65-135		%	4/19/05	4/19/05
EPA 8260B	Surrogate recovery: Toluene-d8	110	65-135		%	4/19/05	4/19/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0418C43  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:25:02 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
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APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47173

Sample ID: 86-WOPT-562

APPL ID: AX17940

Sample Collection Date: 4/18/05

QCG: \$86TTD-050424AM-86925

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 23.5 Percent Moisture.)							
EPA 8260B-	1,1,2,2-Tetrachloroethane	Not detected	65	35	ug/Kg	4/24/05	4/24/05
EPA 8260B-	4-Methyl-2-pentanone	Not detected	650	250	ug/Kg	4/24/05	4/24/05
EPA 8260B-	Tetrachloroethene	2100	65	20	ug/Kg	4/24/05	4/24/05
EPA 8260B-	Surrogate recovery: 1,2-Dichloroethane	102	52-149		%	4/24/05	4/24/05
EPA 8260B-	Surrogate recovery: 4-Bromofluorobenz	108	65-135		%	4/24/05	4/24/05
EPA 8260B-	Surrogate recovery: Toluene-d8	112	65-135		%	4/24/05	4/24/05

Run #: 0424M07  
Instrument: Max  
Sequence: M050422  
Dilution Factor: 100  
Initials: LF

Printed 5/17/05 3:55:50 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990 C86D WATS Bldg 88 Moffett Airfield

ARF: 47173

Sample ID: 86-WOPT-563

APPL ID: AX17941

Sample Collection Date: 4/18/05

QCQ: S86TTS-050417BC-85849

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 16.4 Percent Moisture )							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	0.97	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.5	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.57	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,1-Dichloroethane	5.7 J	6	1.4	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,1-Dichloroethene	15	6	0.94	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.86	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.74	ug/Kg	4/19/05	4/19/05
EPA 8260B	2-Butanone	Not detected	60	0.85	ug/Kg	4/19/05	4/19/05
EPA 8260B	2-Hexanone	Not detected	60	0.19	ug/Kg	4/19/05	4/19/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	60	1.1	ug/Kg	4/19/05	4/19/05
EPA 8260B	Acetone	Not detected	120	3.3	ug/Kg	4/19/05	4/19/05
EPA 8260B	Benzene	Not detected	6	0.75	ug/Kg	4/19/05	4/19/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.83	ug/Kg	4/19/05	4/19/05
EPA 8260B	Bromoform	Not detected	6	0.96	ug/Kg	4/19/05	4/19/05
EPA 8260B	Bromomethane	Not detected	12	1.9	ug/Kg	4/19/05	4/19/05
EPA 8260B	Carbon disulfide	Not detected	6	1.3	ug/Kg	4/19/05	4/19/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.96	ug/Kg	4/19/05	4/19/05
EPA 8260B	Chlorobenzene	Not detected	6	0.59	ug/Kg	4/19/05	4/19/05
EPA 8260B	Chloroethane	Not detected	6	1.8	ug/Kg	4/19/05	4/19/05
EPA 8260B	Chloroform	Not detected	6	1.7	ug/Kg	4/19/05	4/19/05
EPA 8260B	Chloromethane	Not detected	6	2.2	ug/Kg	4/19/05	4/19/05
EPA 8260B	cis-1,2-Dichloroethene	3700 E	6	1.3	ug/Kg	4/19/05	4/19/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.56	ug/Kg	4/19/05	4/19/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.0	ug/Kg	4/19/05	4/19/05
EPA 8260B	Ethylbenzene	Not detected	6	0.77	ug/Kg	4/19/05	4/19/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/19/05	4/19/05
EPA 8260B	Methylene chloride	Not detected	60	5.5	ug/Kg	4/19/05	4/19/05
EPA 8260B	Styrene	Not detected	6	0.83	ug/Kg	4/19/05	4/19/05
EPA 8260B	Tetrachloroethene	350	6	0.65	ug/Kg	4/19/05	4/19/05
EPA 8260B	Toluene	Not detected	6	0.78	ug/Kg	4/19/05	4/19/05
EPA 8260B	trans-1,2-Dichloroethene	17	6	1.6	ug/Kg	4/19/05	4/19/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0418C44  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed 4/25/05 5:25:02 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

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1940 E. Deere Avenue, Suite 20  
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4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47173

Sample ID: 86-WOPT-563

APPL ID: AX17941

Sample Collection Date: 4/18/05

QCG: S86TTS-050417BC-85849

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.51	ug/Kg	4/19/05	4/19/05
EPA 8260B	Trichloroethene	120	6	0.85	ug/Kg	4/19/05	4/19/05
EPA 8260B	Vinyl Acetate	Not detected	60	1.2	ug/Kg	4/19/05	4/19/05
EPA 8260B	Vinyl chloride	2.0 J	6	2.0	ug/Kg	4/19/05	4/19/05
EPA 8260B	Xylenes	Not detected	18	0.81	ug/Kg	4/19/05	4/19/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	109	52-149		%	4/19/05	4/19/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	86.6	65-135		%	4/19/05	4/19/05
EPA 8260B	Surrogate recovery: Toluene-d8	100	65-135		%	4/19/05	4/19/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0418C44  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:25:02 PM  
APPL-F1 SC-MCRes\MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bidg 88 Moffett Airfield

ARF: 47173

Sample ID: 86-WOPT-563

APPL ID: AX17941

Sample Collection Date: 4/18/05

QCG: \$86TTD-050424AM-85925

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 16.4 Percent Moisture.)							
EPA 8260B-	1,1,2,2-Tetrachloroethane	Not detected	60	32	ug/Kg	4/24/05	4/24/05
EPA 8260B-	4-Methyl-2-pentanone	Not detected	600	230	ug/Kg	4/24/05	4/24/05
EPA 8260B-	cis-1,2-Dichloroethene	640	60	19	ug/Kg	4/24/05	4/24/05
EPA 8260B-	Tetrachloroethane	1200	60	18	ug/Kg	4/24/05	4/24/05
EPA 8260B-	Surrogate recovery: 1,2-Dichloroethane	118	52-149		%	4/24/05	4/24/05
EPA 8260B-	Surrogate recovery: 4-Bromofluorobenz	124	65-135		%	4/24/05	4/24/05
EPA 8260B-	Surrogate recovery: Toluene-d8	124	65-135		%	4/24/05	4/24/05

Run #: 0424M08  
Instrument: Max  
Sequence: M050422  
Dilution Factor: 100  
Initials: LF

Printed: 5/17/05 3:55:50 PM  
APPL-F1-SC-MCRes\MCPQL-REG MDLs



**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Blenkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47173

Sample ID: 86-WOPT-564

APPL ID: AX17942

Sample Collection Date: 4/18/05

QCG: \$86TTS-050417BC-85849

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 18.3 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	0.99	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.5	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.59	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,1-Dichloroethane	1.6 J	6	1.4	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,1-Dichloroethene	3.8 J	6	0.97	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.88	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.76	ug/Kg	4/19/05	4/19/05
EPA 8260B	2-Butanone	Not detected	61	0.87	ug/Kg	4/19/05	4/19/05
EPA 8260B	2-Hexanone	Not detected	61	0.20	ug/Kg	4/19/05	4/19/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	61	1.1	ug/Kg	4/19/05	4/19/05
EPA 8260B	Acetone	3.6 J	120	3.4	ug/Kg	4/19/05	4/19/05
EPA 8260B	Benzene	Not detected	6	0.77	ug/Kg	4/19/05	4/19/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.84	ug/Kg	4/19/05	4/19/05
EPA 8260B	Bromoform	Not detected	6	0.98	ug/Kg	4/19/05	4/19/05
EPA 8260B	Bromomethane	Not detected	12	2.0	ug/Kg	4/19/05	4/19/05
EPA 8260B	Carbon disulfide	Not detected	6	1.3	ug/Kg	4/19/05	4/19/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.98	ug/Kg	4/19/05	4/19/05
EPA 8260B	Chlorobenzene	Not detected	6	0.60	ug/Kg	4/19/05	4/19/05
EPA 8260B	Chloroethane	Not detected	6	1.9	ug/Kg	4/19/05	4/19/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	4/19/05	4/19/05
EPA 8260B	Chloromethane	Not detected	6	2.2	ug/Kg	4/19/05	4/19/05
EPA 8260B	cis-1,2-Dichloroethene	880 E	8	1.3	ug/Kg	4/19/05	4/19/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.58	ug/Kg	4/19/05	4/19/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.0	ug/Kg	4/19/05	4/19/05
EPA 8260B	Ethylbenzene	Not detected	6	0.78	ug/Kg	4/19/05	4/19/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/19/05	4/19/05
EPA 8260B	Methylene chloride	Not detected	61	5.6	ug/Kg	4/19/05	4/19/05
EPA 8260B	Styrene	Not detected	6	0.84	ug/Kg	4/19/05	4/19/05
EPA 8260B	Tetrachloroethene	3300 E	6	0.68	ug/Kg	4/19/05	4/19/05
EPA 8260B	Toluene	Not detected	6	0.80	ug/Kg	4/19/05	4/19/05
EPA 8260B	trans-1,2-Dichloroethene	3.2 J	6	1.6	ug/Kg	4/19/05	4/19/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0418C45  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

**ADDED PAGE**

Printed: 4/25/05 5:25:02 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffatt Airfield

ARF: 47173

Sample ID: 86-WCPT-564

APPL ID: AX17942

Sample Collection Date: 4/18/05

QCG: \$86TTS-650417BC-85649

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.53	ug/Kg	4/19/05	4/19/05
EPA 8260B	Trichloroethene	400	6	0.87	ug/Kg	4/19/05	4/19/05
EPA 8260B	Vinyl Acetate	Not detected	61	1.2	ug/Kg	4/19/05	4/19/05
EPA 8260B	Vinyl chloride	Not detected	6	2.1	ug/Kg	4/19/05	4/19/05
EPA 8260S	Xylenes	Not detected	18	0.83	ug/Kg	4/19/05	4/19/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	112	52-149		%	4/19/05	4/19/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	99.6	65-135		%	4/19/05	4/19/05
EPA 8260B	Surrogate recovery: Toluene-d8	98.0	65-135		%	4/19/05	4/19/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0418C45  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:25:02 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-564

Sample Collection Date: 4/18/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47173

APPL ID: AX17942

QCG: S86TTD-050424AM-86925

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 18.3 Percent Moisture.)							
EPA 8260B-	cis-1,2-Dichloroethene	220	61	20	ug/Kg	4/24/05	4/24/05
EPA 8260B-	Tetrachloroethene	2100	61	18	ug/Kg	4/24/05	4/24/05
EPA 8260B-	Surrogate recovery: 1,2-Dichloroethane	132	52-149		%	4/24/05	4/24/05
EPA 8260B-	Surrogate recovery: 4-Bromofluorobenz	130	65-135		%	4/24/05	4/24/05
EPA 8260B-	Surrogate recovery: Toluene-d8	130	65-135		%	4/24/05	4/24/05

Run #: 0424M09  
Instrument: Max  
Sequence: M050422  
Dilution Factor: 100  
Initials: LF

Printed: 5/17/05 1:16:18 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Mcffett Airfield

ARF: 47173

Sample ID: 86-WOPT-565

APPL ID: AX17943

Sample Collection Date: 4/18/05

QC#: S86TTS-050417BC-85849

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 16.8 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	0.97	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.5	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.58	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,1-Dichloroethane	1.5 J	6	1.4	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,1-Dichloroethene	3.4 J	6	0.95	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.87	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.75	ug/Kg	4/19/05	4/19/05
EPA 8260B	2-Butanone	Not detected	60	0.85	ug/Kg	4/19/05	4/19/05
EPA 8260B	2-Hexanone	Not detected	60	0.19	ug/Kg	4/19/05	4/19/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	60	1.1	ug/Kg	4/19/05	4/19/05
EPA 8260B	Acetone	Not detected	120	3.4	ug/Kg	4/19/05	4/19/05
EPA 8260B	Benzene	Not detected	6	0.76	ug/Kg	4/19/05	4/19/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.83	ug/Kg	4/19/05	4/19/05
EPA 8260B	Bromoform	Not detected	6	0.96	ug/Kg	4/19/05	4/19/05
EPA 8260B	Bromomethane	Not detected	12	1.9	ug/Kg	4/19/05	4/19/05
EPA 8260B	Carbon disulfide	Not detected	6	1.3	ug/Kg	4/19/05	4/19/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.96	ug/Kg	4/19/05	4/19/05
EPA 8260B	Chlorobenzene	Not detected	6	0.59	ug/Kg	4/19/05	4/19/05
EPA 8260B	Chloroethane	Not detected	6	1.9	ug/Kg	4/19/05	4/19/05
EPA 8260B	Chloroform	Not detected	6	1.7	ug/Kg	4/19/05	4/19/05
EPA 8260B	Chloromethane	Not detected	6	2.2	ug/Kg	4/19/05	4/19/05
EPA 8260B	cis-1,2-Dichloroethene	68	6	1.3	ug/Kg	4/19/05	4/19/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.56	ug/Kg	4/19/05	4/19/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.0	ug/Kg	4/19/05	4/19/05
EPA 8260B	Ethylbenzene	Not detected	6	0.77	ug/Kg	4/19/05	4/19/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/19/05	4/19/05
EPA 8260B	Methylene chloride	Not detected	60	5.5	ug/Kg	4/19/05	4/19/05
EPA 8260B	Styrene	Not detected	6	0.83	ug/Kg	4/19/05	4/19/05
EPA 8260B	Tetrachloroethene	580	6	0.65	ug/Kg	4/19/05	4/19/05
EPA 8260B	Toluene	Not detected	6	0.78	ug/Kg	4/19/05	4/19/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.6	ug/Kg	4/19/05	4/19/05

J = Estimated value, below quantitation limit.

Run #: 0418C46  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:25:02 PM  
APPL-F1-SC-MCRes\MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffatt Airfield

ARF: 47173

Sample ID: 86-WOPT-565

APPL ID: AX17943

Sample Collection Date: 4/18/05

QCG: S86TTS-050417BC-85849

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.52	ug/Kg	4/19/05	4/19/05
EPA 8260B	Trichloroethene	170	6	0.85	ug/Kg	4/19/05	4/19/05
EPA 8260B	Vinyl Acetate	Not detected	60	1.2	ug/Kg	4/19/05	4/19/05
EPA 8260B	Vinyl chloride	Not detected	6	2.0	ug/Kg	4/19/05	4/19/05
EPA 8260B	Xylenes	Not detected	18	0.82	ug/Kg	4/19/05	4/19/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	111	52-149		%	4/19/05	4/19/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	92.1	65-135		%	4/19/05	4/19/05
EPA 8260B	Surrogate recovery: Toluene-d8	100	65-135		%	4/19/05	4/19/05

J = Estimated value, below quantitation limit.

Run #: 0418C46  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:25:02 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Brenkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47173

Sample ID: 86-WOPT-566

APPL ID: AX17944

Sample Collection Date: 4/18/05

QCG: S86TTS-050417BC-85849

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 18.8 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	1.0	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.5	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.59	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,1-Dichloroethane	Not detected	6	1.4	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,1-Dichloroethene	2.9 J	6	0.97	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.89	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.76	ug/Kg	4/19/05	4/19/05
EPA 8260B	2-Butanone	Not detected	62	0.87	ug/Kg	4/19/05	4/19/05
EPA 8260B	2-Hexanone	Not detected	62	0.20	ug/Kg	4/19/05	4/19/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	62	1.1	ug/Kg	4/19/05	4/19/05
EPA 8260B	Acetone	Not detected	120	3.4	ug/Kg	4/19/05	4/19/05
EPA 8260B	Benzene	Not detected	6	0.78	ug/Kg	4/19/05	4/19/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.85	ug/Kg	4/19/05	4/19/05
EPA 8260B	Bromoform	Not detected	6	0.99	ug/Kg	4/19/05	4/19/05
EPA 8260B	Bromomethane	Not detected	12	2.0	ug/Kg	4/19/05	4/19/05
EPA 8260B	Carbon disulfide	Not detected	6	1.3	ug/Kg	4/19/05	4/19/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.99	ug/Kg	4/19/05	4/19/05
EPA 8260B	Chlorobenzene	Not detected	6	0.60	ug/Kg	4/19/05	4/19/05
EPA 8260B	Chloroethane	Not detected	6	1.9	ug/Kg	4/19/05	4/19/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	4/19/05	4/19/05
EPA 8260B	Chloromethane	Not detected	6	2.2	ug/Kg	4/19/05	4/19/05
EPA 8260B	cis-1,2-Dichloroethene	28	6	1.3	ug/Kg	4/19/05	4/19/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.58	ug/Kg	4/19/05	4/19/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.0	ug/Kg	4/19/05	4/19/05
EPA 8260B	Ethylbenzene	Not detected	6	0.79	ug/Kg	4/19/05	4/19/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/19/05	4/19/05
EPA 8260B	Methylene chloride	Not detected	62	5.6	ug/Kg	4/19/05	4/19/05
EPA 8260B	Styrene	Not detected	6	0.85	ug/Kg	4/19/05	4/19/05
EPA 8260B	Tetrachloroethene	4400 E	6	0.67	ug/Kg	4/19/05	4/19/05
EPA 8260B	Toluene	Not detected	6	0.80	ug/Kg	4/19/05	4/19/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.7	ug/Kg	4/19/05	4/19/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0418C47  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:25:02 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Doere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 68 Moffett Airfield

ARF: 47173

Sample ID: 86-WOPT-565

APPL ID: AX17944

Sample Collection Date: 4/18/05

QCG: \$86TTS-050417BC-85849

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.53	ug/Kg	4/19/05	4/19/05
EPA 8260B	Trichloroethene	170	6	0.87	ug/Kg	4/19/05	4/19/05
EPA 8260B	Vinyl Acetate	Not detected	62	1.2	ug/Kg	4/19/05	4/19/05
EPA 8260B	Vinyl chloride	Not detected	6	2.1	ug/Kg	4/19/05	4/19/05
EPA 8260B	Xylenes	Not detected	18	0.84	ug/Kg	4/19/05	4/19/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	110	52-149		%	4/19/05	4/19/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	102	65-135		%	4/19/05	4/19/05
EPA 8260B	Surrogate recovery: Toluene-d8	101	65-135		%	4/19/05	4/19/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0418C47  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed 4/25/05 5:25:02 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.066D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-566

Sample Collection Date: 4/18/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

AR#: 47173

APPL ID: AX17944

QCG: S86TTD-050424AM-86925

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 18.8 Percent Moisture.)							
EPA 8260B-	Tetrachloroethene	580	62	18	ug/Kg	4/25/05	4/25/05
EPA 8260B-	Surrogate recovery: 1,2-Dichloroethane	120	52-149		%	4/25/05	4/25/05
EPA 8260B-	Surrogate recovery: 4-Bromofluorobenz	119	65-135		%	4/25/05	4/25/05
EPA 8260B-	Surrogate recovery: Toluene-d8	117	65-135		%	4/25/05	4/25/05

Run #: 0424M110  
Instrument: Max  
Sequence: M050422  
Dilution Factor: 100  
Initials: LF

Printed: 5/17/05 11:06 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

ARF: 47173

Sample ID: 86-WOPT-567

APPL ID: AX17945

Sample Collection Date: 4/18/05

QCG: S86TTS-050417BC-85849

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 16.8 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	0.97	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.5	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.58	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,1-Dichloroethane	Not detected	6	1.4	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,1-Dichloroethene	Not detected	6	0.95	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.87	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.75	ug/Kg	4/19/05	4/19/05
EPA 8260B	2-Butanone	Not detected	60	0.85	ug/Kg	4/19/05	4/19/05
EPA 8260B	2-Hexanone	Not detected	60	0.19	ug/Kg	4/19/05	4/19/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	60	1.1	ug/Kg	4/19/05	4/19/05
EPA 8260B	Acetone	Not detected	120	3.4	ug/Kg	4/19/05	4/19/05
EPA 8260B	Benzene	Not detected	6	0.76	ug/Kg	4/19/05	4/19/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.83	ug/Kg	4/19/05	4/19/05
EPA 8260B	Bromoform	Not detected	6	0.96	ug/Kg	4/19/05	4/19/05
EPA 8260B	Bromomethane	Not detected	12	1.9	ug/Kg	4/19/05	4/19/05
EPA 8260B	Carbon disulfide	Not detected	6	1.3	ug/Kg	4/19/05	4/19/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.96	ug/Kg	4/19/05	4/19/05
EPA 8260B	Chlorobenzene	Not detected	6	0.59	ug/Kg	4/19/05	4/19/05
EPA 8260B	Chloroethane	Not detected	6	1.9	ug/Kg	4/19/05	4/19/05
EPA 8260B	Chloroform	Not detected	6	1.7	ug/Kg	4/19/05	4/19/05
EPA 8260B	Chloromethane	Not detected	6	2.2	ug/Kg	4/19/05	4/19/05
EPA 8260B	cis-1,2-Dichloroethene	1.3 J	6	1.3	ug/Kg	4/19/05	4/19/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.56	ug/Kg	4/19/05	4/19/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.0	ug/Kg	4/19/05	4/19/05
EPA 8260B	Ethylbenzene	Not detected	6	0.77	ug/Kg	4/19/05	4/19/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/19/05	4/19/05
EPA 8260B	Methylene chloride	Not detected	60	5.5	ug/Kg	4/19/05	4/19/05
EPA 8260B	Styrene	Not detected	6	0.83	ug/Kg	4/19/05	4/19/05
EPA 8260B	Tetrachloroethene	2700 E	6	0.65	ug/Kg	4/19/05	4/19/05
EPA 8260B	Toluene	Not detected	6	0.78	ug/Kg	4/19/05	4/19/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.6	ug/Kg	4/19/05	4/19/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0418C48  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:25:02 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Blenkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47173

Sample ID: 86-WOPT-567

APPL ID: AX17945

Sample Collection Date: 4/12/05

QCG: S86TTS-050417BC-85849

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.52	ug/Kg	4/19/05	4/19/05
EPA 8260B	Trichloroethene	54	6	0.85	ug/Kg	4/19/05	4/19/05
EPA 8260B	Vinyl Acetate	Not detected	60	1.2	ug/Kg	4/19/05	4/19/05
EPA 8260B	Vinyl chloride	Not detected	6	2.0	ug/Kg	4/19/05	4/19/05
EPA 8260B	Xylenes	Not detected	18	0.82	ug/Kg	4/19/05	4/19/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	118	52-149		%	4/19/05	4/19/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	99.5	65-135		%	4/19/05	4/19/05
EPA 8260B	Surrogate recovery: Toluene-d8	96.4	65-135		%	4/19/05	4/19/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0418C48  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:25:02 PM  
APPL-F1-SC-MCRes\MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APFL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-567

Sample Collection Date: 4/18/05

ARF: 47173

APPL ID: AX17945

QCG: S86TTD-050424AM-86925

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 16.8 Percent Moisture.)							
EPA 8260B-	Tetrachloroethene	690	60	18	ug/Kg	4/25/05	4/25/05
EPA 8260B-	Surrogate recovery: 1,2-Dichloroethane	129	52-149		%	4/25/05	4/25/05
EPA 8260B-	Surrogate recovery: 4-Bromofluorobenz	130	65-135		%	4/25/05	4/25/05
EPA 8260B-	Surrogate recovery: Toluene-d8	131	65-135		%	4/25/05	4/25/05

Run #: 0424M11  
Instrument: Max  
Sequence: M050422  
Dilution Factor: 100  
Initials: LF

Printed: 5/17/05 11:06 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-568

Sample Collection Date: 4/18/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47173

APPL ID: AX17946

QCG: \$86TTW-050418BM-8584

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/19/05	4/19/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/19/05	4/19/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/19/05	4/19/05
EPA 8260B	1,1-Dichloroethane	Not detected	0.5	0.19	ug/L	4/19/05	4/19/05
EPA 8260B	1,1-Dichloroethene	Not detected	0.5	0.30	ug/L	4/19/05	4/19/05
EPA 8260B	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/19/05	4/19/05
EPA 8260B	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/19/05	4/19/05
EPA 8260B	2-Butanone	Not detected	5	0.6	ug/L	4/19/05	4/19/05
EPA 8260B	2-Hexanone	Not detected	5	0.92	ug/L	4/19/05	4/19/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/19/05	4/19/05
EPA 8260B	Acetone	Not detected	5	0.95	ug/L	4/19/05	4/19/05
EPA 8260B	Benzene	Not detected	0.5	0.16	ug/L	4/19/05	4/19/05
EPA 8260B	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/19/05	4/19/05
EPA 8260B	Bromoform	Not detected	0.5	0.14	ug/L	4/19/05	4/19/05
EPA 8260B	Bromomethane	Not detected	1	0.24	ug/L	4/19/05	4/19/05
EPA 8260B	Carbon disulfide	Not detected	0.5	0.2	ug/L	4/19/05	4/19/05
EPA 8260B	Carbon tetrachloride	Not detected	0.5	0.10	ug/L	4/19/05	4/19/05
EPA 8260B	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/19/05	4/19/05
EPA 8260B	Chloroethane	Not detected	0.5	0.21	ug/L	4/19/05	4/19/05
EPA 8260B	Chloroform	Not detected	0.5	0.16	ug/L	4/19/05	4/19/05
EPA 8260B	Chloromethane	Not detected	0.5	0.31	ug/L	4/19/05	4/19/05
EPA 8260B	cis-1,2-Dichloroethene	Not detected	0.5	0.16	ug/L	4/19/05	4/19/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/19/05	4/19/05
EPA 8260B	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/19/05	4/19/05
EPA 8260B	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/19/05	4/19/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/19/05	4/19/05
EPA 8260B	Methylene chloride	Not detected	5	0.35	ug/L	4/19/05	4/19/05
EPA 8260B	Styrene	Not detected	0.5	0.25	ug/L	4/19/05	4/19/05
EPA 8260B	Tetrachloroethene	Not detected	0.5	0.15	ug/L	4/19/05	4/19/05
EPA 8260B	Toluene	Not detected	0.5	0.17	ug/L	4/19/05	4/19/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	0.5	0.19	ug/L	4/19/05	4/19/05

Run #: 0418M40

Instrument: Max

Sequence: M050414

Dilution Factor: 1

Initials: LF

Printed: 4/25/05 5:25:02 PM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bińkowski

Project: 1990 086D WATS Bldg 68 Moffett Airfield

Sample ID: 86-WOPT-568

Sample Collection Date: 4/18/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47173

APPL ID: AX17946

QCG: \$86TTW-050418BM-8584

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/19/05	4/19/05
EPA 8260B	Trichloroethene	Not detected	0.5	0.16	ug/L	4/19/05	4/19/05
EPA 8260B	Vinyl Acetate	Not detected	5	0.31	ug/L	4/19/05	4/19/05
EPA 8260B	Vinyl chloride	Not detected	0.5	0.23	ug/L	4/19/05	4/19/05
EPA 8260B	Xylenes	Not detected	1.5	0.19	ug/L	4/19/05	4/19/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	112	62-139		%	4/19/05	4/19/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	92.3	75-125		%	4/19/05	4/19/05
EPA 8260B	Surrogate recovery: Toluene-d8	96.4	75-125		%	4/19/05	4/19/05

Run #: 0418M40  
Instrument: Max  
Sequence: M050414  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:25:02 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 83 Moffett Airfield

ARF: 47173

Sample ID: 86-WOPT-1065

APPL ID: AX17947

Sample Collection Date: 4/18/05

QCG: SC42VT-050418AN-85845

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/19/05	4/19/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/19/05	4/19/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	0.5	0.21	ug/L	4/19/05	4/19/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/19/05	4/19/05
CLP VOL	1,1-Dichloroethane	Not detected	0.5	0.19	ug/L	4/19/05	4/19/05
CLP VOL	1,1-Dichloroethene	Not detected	0.5	0.30	ug/L	4/19/05	4/19/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/19/05	4/19/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/19/05	4/19/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/19/05	4/19/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/19/05	4/19/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/19/05	4/19/05
CLP VOL	Acetone	7.3	5	0.95	ug/L	4/19/05	4/19/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/19/05	4/19/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/19/05	4/19/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/19/05	4/19/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/19/05	4/19/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/19/05	4/19/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/19/05	4/19/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/19/05	4/19/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/19/05	4/19/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	4/19/05	4/19/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/19/05	4/19/05
CLP VOL	cis-1,2-Dichloroethene	Not detected	0.5	0.16	ug/L	4/19/05	4/19/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/19/05	4/19/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/19/05	4/19/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/19/05	4/19/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/19/05	4/19/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/19/05	4/19/05
CLP VOL	Methylene Chloride	0.50	0.5	0.35	ug/L	4/19/05	4/19/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/19/05	4/19/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/19/05	4/19/05

Run #: 0418N14

Instrument: Neo

Sequence: N050418

Dilution Factor: 1

Initials: LF

Printed 4/25/05 5:25:02 PM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1065

Sample Collection Date: 4/18/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47173

APPL ID: AX17947

OCG: SC42VT-050418AN-85845

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	Not detected	0.5	0.15	ug/L	4/19/05	4/19/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/19/05	4/19/05
CLP VOL	trans-1,2-Dichloroethene	Not detected	0.5	0.19	ug/L	4/19/05	4/19/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/19/05	4/19/05
CLP VOL	Trichloroethene	Not detected	0.5	0.16	ug/L	4/19/05	4/19/05
CLP VOL	Vinyl Chloride	Not detected	0.5	0.23	ug/L	4/19/05	4/19/05
CLP VOL	Surrogate Recovery (BFB)	98.5	75-125		%	4/19/05	4/19/05
CLP VOL	Surrogate Recovery (DCA)	99.3	62-139		%	4/19/05	4/19/05
CLP VOL	Surrogate Recovery (TOL)	90.6	75-125		%	4/19/05	4/19/05

Run #: 0418N14  
Instrument: Neo  
Sequence: N050418  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:25:02 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47173

Sample ID: 66-WOPT-1066

APPL ID: AX17948

Sample Collection Date: 4/18/05

QCG: SC42VT-050418AN-85945

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/19/05	4/19/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/19/05	4/19/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	7.2	0.5	0.21	ug/L	4/19/05	4/19/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/19/05	4/19/05
CLP VOL	1,1-Dichloroethane	13	0.5	0.19	ug/L	4/19/05	4/19/05
CLP VOL	1,1-Dichloroethene	18	0.5	0.30	ug/L	4/19/05	4/19/05
CLP VOL	1,2-Dichloroethane	0.63	0.5	0.14	ug/L	4/19/05	4/19/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/19/05	4/19/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/19/05	4/19/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/19/05	4/19/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/19/05	4/19/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/19/05	4/19/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/19/05	4/19/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/19/05	4/19/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/19/05	4/19/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/19/05	4/19/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/19/05	4/19/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/19/05	4/19/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/19/05	4/19/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/19/05	4/19/05
CLP VOL	Chloroform	0.32 J	0.5	0.16	ug/L	4/19/05	4/19/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/19/05	4/19/05
CLP VOL	cis-1,2-Dichloroethene	680 E	0.5	0.16	ug/L	4/19/05	4/19/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/19/05	4/19/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/19/05	4/19/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/19/05	4/19/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/19/05	4/19/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/19/05	4/19/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/19/05	4/19/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/19/05	4/19/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/19/05	4/19/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0418N15  
Instrument: Neo  
Sequence: N050418  
Dilution Factor: 1  
Initials: LF

Printed 4/25/05 5:25:02 PM  
APPL-F1-SC-MCRes/MCPOL-REG MDLs



## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1066

Sample Collection Date: 4/19/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47173

APPL ID: AX17948

QCG: SC42VT-050418AN-85845

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	180 E	0.5	0.15	ug/L	4/19/05	4/19/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/19/05	4/19/05
CLP VOL	trans-1,2-Dichloroethene	6.1	0.5	0.19	ug/L	4/19/05	4/19/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/19/05	4/19/05
CLP VOL	Trichloroethene	350 E	0.5	0.16	ug/L	4/19/05	4/19/05
CLP VOL	Vinyl Chloride	6.9	0.5	0.23	ug/L	4/19/05	4/19/05
CLP VOL	Surrogate Recovery (BFB)	104	75-125		%	4/19/05	4/19/05
CLP VOL	Surrogate Recovery (DCA)	93.4	62-139		%	4/19/05	4/19/05
CLP VOL	Surrogate Recovery (TOL)	98.2	75-125		%	4/19/05	4/19/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0418N15  
Instrument: Neo  
Sequence: N050418  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:25:02 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1840 E. Dæere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Blenkowski

Project: 1990.080D WATS Bldg 86 Moffett Airfield

Sample ID: 86-WOPT-1066

Sample Collection Date: 4/18/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47173

APPL ID: AX17948

QCG: SC42VD-050418BN-86875

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	630	12.5	4.00	ug/L	4/19/05	4/19/05
CLP VOL	Tetrachloroethene	120	12.5	3.75	ug/L	4/19/05	4/19/05
CLP VOL	Trichloroethene	280	12.5	4.00	ug/L	4/19/05	4/19/05
CLP VOL	Surrogate Recovery (BFB)	109	75-125		%	4/19/05	4/19/05
CLP VOL	Surrogate Recovery (DCA)	117	62-139		%	4/19/05	4/19/05
CLP VOL	Surrogate Recovery (TOL)	108	75-125		%	4/19/05	4/19/05

Run #: 0418N30  
Instrument: Neo  
Sequence: N050418  
Dilution Factor: 25  
Initials: LF

Printed: 5/17/05 1 23:08 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1067

Sample Collection Date: 4/18/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47173

APPL ID: AX17949

QCG: SC42VT-050418AN-85845

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/19/05	4/19/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/19/05	4/19/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	10	0.5	0.21	ug/L	4/19/05	4/19/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/19/05	4/19/05
CLP VOL	1,1-Dichloroethane	23	0.5	0.19	ug/L	4/19/05	4/19/05
CLP VOL	1,1-Dichloroethene	34	0.5	0.30	ug/L	4/19/05	4/19/05
CLP VOL	1,2-Dichloroethane	1.9	0.5	0.14	ug/L	4/19/05	4/19/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/19/05	4/19/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/19/05	4/19/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/19/05	4/19/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/19/05	4/19/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/19/05	4/19/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/19/05	4/19/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/19/05	4/19/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/19/05	4/19/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/19/05	4/19/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/19/05	4/19/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/19/05	4/19/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/19/05	4/19/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/19/05	4/19/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	4/19/05	4/19/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/19/05	4/19/05
CLP VOL	cis-1,2-Dichloroethene	900 E	0.5	0.16	ug/L	4/19/05	4/19/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/19/05	4/19/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/19/05	4/19/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/19/05	4/19/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/19/05	4/19/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/19/05	4/19/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/19/05	4/19/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/19/05	4/19/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/19/05	4/19/05

E = The reported value exceeds linear range.

Run #: 0418N16  
Instrument: Neo  
Sequence: N050418  
Dilution Factor: 1  
Initials: LF

Printed 4/25/05 5:25:02 PM  
APPL-F1-SC-MCRES/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1950.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1067

Sample Collection Date: 4/18/05

ARF: 47173

APPL ID: AX17949

QCG: SC42VT-050418AN-85845

Method	Analyte	Result	FQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	26	0.5	0.15	ug/L	4/19/05	4/19/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/19/05	4/19/05
CLP VOL	trans-1,2-Dichloroethene	6.3	0.5	0.19	ug/L	4/19/05	4/19/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/19/05	4/19/05
CLP VOL	Trichloroethene	280 E	0.5	0.16	ug/L	4/19/05	4/19/05
CLP VOL	Vinyl Chloride	9.3	0.5	0.23	ug/L	4/19/05	4/19/05
CLP VOL	Surrogate Recovery (BFB)	97.5	75-125		%	4/19/05	4/19/05
CLP VOL	Surrogate Recovery (DCA)	97.5	62-139		%	4/19/05	4/19/05
CLP VOL	Surrogate Recovery (TOL)	86.9	75-125		%	4/19/05	4/19/05

E = The reported value exceeds linear range.

Run #: 0418N16  
Instrument: Neo  
Sequence: N050418  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:25:02 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Daere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Sienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1067

Sample Collection Date: 4/18/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47173

APPL ID: AX17949

QCG: SC42VD-050418BN-36875

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	880	12.5	4.00	ug/L	4/19/05	4/19/05
CLP VOL	Trichloroethene	210	12.5	4.00	ug/L	4/19/05	4/19/05
CLP VOL	Surrogate Recovery (BFB)	102	75-125		%	4/19/05	4/19/05
CLP VOL	Surrogate Recovery (DCA)	119	62-139		%	4/19/05	4/19/05
CLP VOL	Surrogate Recovery (TOL)	108	75-125		%	4/19/05	4/19/05

Run #: 0418N31  
Instrument: Neo  
Sequence: N050418  
Dilution Factor: 25  
Initials: LF

Printed: 5/17/05 1:23:08 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1340 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 68 Moffett Airfield

Sample ID: 86-WOPT-1068

Sample Collection Date: 4/18/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47173

APPL ID: AX17950

QCG: SC42VT-050418AN-85845

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	0.61	0.5	0.14	ug/L	4/19/05	4/19/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/19/05	4/19/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	35	0.5	0.21	ug/L	4/19/05	4/19/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/19/05	4/19/05
CLP VOL	1,1-Dichloroethane	24	0.5	0.19	ug/L	4/19/05	4/19/05
CLP VOL	1,1-Dichloroethene	50	0.5	0.30	ug/L	4/19/05	4/19/05
CLP VOL	1,2-Dichloroethane	0.93	0.5	0.14	ug/L	4/19/05	4/19/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/19/05	4/19/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/19/05	4/19/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/19/05	4/19/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/19/05	4/19/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/19/05	4/19/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/19/05	4/19/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/19/05	4/19/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/19/05	4/19/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/19/05	4/19/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/19/05	4/19/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/19/05	4/19/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/19/05	4/19/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/19/05	4/19/05
CLP VOL	Chloroform	0.23 J	0.5	0.16	ug/L	4/19/05	4/19/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/19/05	4/19/05
CLP VOL	cis-1,2-Dichloroethene	1000 E	0.5	0.16	ug/L	4/19/05	4/19/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/19/05	4/19/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/19/05	4/19/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/19/05	4/19/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/19/05	4/19/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/19/05	4/19/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/19/05	4/19/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/19/05	4/19/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/19/05	4/19/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0418N17  
Instrument: Neo  
Sequence: N050418  
Dilution Factor: 1  
Initials: LF

Printed 4/25/05 5:25:03 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E Deere Avenue, Suite 20  
Santa Ana, CA 92703

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski  
Project: 1590.086D WATS Bldg 88 Moffett Airfield

ARF: 47173

Sample ID: 86-WOFT-1068

APPL ID: AX17950

Sample Collection Date: 4/18/05

QCG: SC42VT-050418AN-85845

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	57	0.5	0.15	ug/L	4/19/05	4/19/05
CLP VOL	Toluene	0.26 J	0.5	0.17	ug/L	4/19/05	4/19/05
CLP VOL	trans-1,2-Dichloroethene	11	0.5	0.19	ug/L	4/19/05	4/19/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/19/05	4/19/05
CLP VOL	Trichloroethene	1000 E	0.5	0.16	ug/L	4/19/05	4/19/05
CLP VOL	Vinyl Chloride	11	0.5	0.23	ug/L	4/19/05	4/19/05
CLP VOL	Surrogate Recovery (BFB)	98.3	75-125		%	4/19/05	4/19/05
CLP VOL	Surrogate Recovery (DCA)	98.9	62-139		%	4/19/05	4/19/05
CLP VOL	Surrogate Recovery (TOL)	94.7	75-125		%	4/19/05	4/19/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0418N17  
Instrument: Neo  
Sequence: N050418  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:25:03 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield  
**Sample ID: 86-WOPT-1068**  
Sample Collection Date: 4/18/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47173  
**APPL ID: AX17950**  
QCG: SC42VD-050418BN-86875

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	1100	25	8.00	ug/L	4/19/05	4/19/05
CLP VOL	Trichloroethene	1100	25	8.00	ug/L	4/19/05	4/19/05
CLP VOL	Surrogate Recovery (BFB)	105	75-125		%	4/19/05	4/19/05
CLP VOL	Surrogate Recovery (DCA)	119	62-139		%	4/19/05	4/19/05
CLP VOL	Surrogate Recovery (TOL)	114	75-125		%	4/19/05	4/19/05

Run #: 0418N32  
Instrument: Neo  
Sequence: N050418  
Dilution Factor: 50  
Initials: LF

Printed: 5/17/05 1:23:08 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 66-WOPT-1069

Sample Collection Date: 4/18/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47173

APPL ID: AX17951

QCG: SC42VT-050418AN-85845

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/19/05	4/19/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/19/05	4/19/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	0.5	0.21	ug/L	4/19/05	4/19/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/19/05	4/19/05
CLP VOL	1,1-Dichloroethane	Not detected	0.5	0.19	ug/L	4/19/05	4/19/05
CLP VOL	1,1-Dichloroethene	Not detected	0.5	0.30	ug/L	4/19/05	4/19/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/19/05	4/19/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/19/05	4/19/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/19/05	4/19/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/19/05	4/19/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/19/05	4/19/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/19/05	4/19/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/19/05	4/19/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/19/05	4/19/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/19/05	4/19/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/19/05	4/19/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/19/05	4/19/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/19/05	4/19/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/19/05	4/19/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/19/05	4/19/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	4/19/05	4/19/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/19/05	4/19/05
CLP VOL	cis-1,2-Dichloroethene	11	0.5	0.16	ug/L	4/19/05	4/19/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/19/05	4/19/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/19/05	4/19/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/19/05	4/19/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/19/05	4/19/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/19/05	4/19/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/19/05	4/19/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/19/05	4/19/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/19/05	4/19/05

Run #: 0418N18  
Instrument: Neo  
Sequence: N050418  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:25:03 PM  
APPL-F1-SC-MCRs/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1069

Sample Collection Date: 4/18/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47173

APPL ID: AX17951

QCG: SC42VT-050418AN-85845

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	1.0	0.5	0.15	ug/L	4/19/05	4/19/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/19/05	4/19/05
CLP VOL	trans-1,2-Dichloroethene	Not detected	0.5	0.19	ug/L	4/19/05	4/19/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/19/05	4/19/05
CLP VOL	Trichloroethene	6.3	0.5	0.16	ug/L	4/19/05	4/19/05
CLP VOL	Vinyl Chloride	Not detected	0.5	0.23	ug/L	4/19/05	4/19/05
CLP VOL	Surrogate Recovery (BFB)	99.2	75-125		%	4/19/05	4/19/05
CLP VOL	Surrogate Recovery (DCA)	96.3	62-139		%	4/19/05	4/19/05
CLP VOL	Surrogate Recovery (TOL)	92.3	75-125		%	4/19/05	4/19/05

Run #: 0418N18  
Instrument: Neo  
Sequence: N050418  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:25:03 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47173

Sample ID: 86-WOPT-1070

APPL ID: AX17952

Sample Collection Date: 4/18/05

QCG: S86TTS-050417BC-85949

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 20.5 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	1.0	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.6	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.60	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,1-Dichloroethane	2.0 J	6	1.4	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,1-Dichloroethene	3.3 J	6	0.99	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.91	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.78	ug/Kg	4/19/05	4/19/05
EPA 8260B	2-Butanone	Not detected	63	0.89	ug/Kg	4/19/05	4/19/05
EPA 8260B	2-Hexanone	Not detected	63	0.20	ug/Kg	4/19/05	4/19/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	63	1.2	ug/Kg	4/19/05	4/19/05
EPA 8260B	Acetone	Not detected	130	3.5	ug/Kg	4/19/05	4/19/05
EPA 8260B	Benzene	Not detected	6	0.79	ug/Kg	4/19/05	4/19/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.87	ug/Kg	4/19/05	4/19/05
EPA 8260B	Bromoform	Not detected	6	1.0	ug/Kg	4/19/05	4/19/05
EPA 8260B	Bromomethane	Not detected	13	2.0	ug/Kg	4/19/05	4/19/05
EPA 8260B	Carbon disulfide	Not detected	6	1.4	ug/Kg	4/19/05	4/19/05
EPA 8260B	Carbon tetrachloride	Not detected	6	1.0	ug/Kg	4/19/05	4/19/05
EPA 8260B	Chlorobenzene	Not detected	6	0.62	ug/Kg	4/19/05	4/19/05
EPA 8260B	Chloroethane	Not detected	6	2.0	ug/Kg	4/19/05	4/19/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	4/19/05	4/19/05
EPA 8260B	Chloromethane	Not detected	6	2.3	ug/Kg	4/19/05	4/19/05
EPA 8260B	cis-1,2-Dichloroethene	160	6	1.4	ug/Kg	4/19/05	4/19/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.59	ug/Kg	4/19/05	4/19/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.1	ug/Kg	4/19/05	4/19/05
EPA 8260B	Ethylbenzene	Not detected	6	0.81	ug/Kg	4/19/05	4/19/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/19/05	4/19/05
EPA 8260B	Methylene chloride	Not detected	63	5.8	ug/Kg	4/19/05	4/19/05
EPA 8260B	Styrene	Not detected	6	0.87	ug/Kg	4/19/05	4/19/05
EPA 8260B	Tetrachloroethene	88	6	0.68	ug/Kg	4/19/05	4/19/05
EPA 8260B	Toluene	Not detected	6	0.82	ug/Kg	4/19/05	4/19/05
EPA 8260B	trans-1,2-Dichloroethene	2.1 J	6	1.7	ug/Kg	4/19/05	4/19/05

J = Estimated value, below quantitation limit.

Run #: 0418C39  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed 4/25/05 5:25:03 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92735

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield  
Sample ID: **86-WOPT-1070**  
Sample Collection Date: 4/18/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47173

**APPL ID: AX17952**

QCG: S86TTS-050417BC-85849

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.54	ug/Kg	4/19/05	4/19/05
EPA 8260B	Trichloroethene	130	6	0.89	ug/Kg	4/19/05	4/19/05
EPA 8260B	Vinyl Acetate	Not detected	63	1.3	ug/Kg	4/19/05	4/19/05
EPA 8260B	Vinyl chloride	3.5 J	6	2.1	ug/Kg	4/19/05	4/19/05
EPA 8260B	Xylenes	Not detected	19	0.86	ug/Kg	4/19/05	4/19/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	120	52-149		%	4/19/05	4/19/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	101	65-135		%	4/19/05	4/19/05
EPA 8260B	Surrogate recovery: Toluene-d8	95.5	65-135		%	4/19/05	4/19/05

J = Estimated value, below quantitation limit.

Run #: 0418C39  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed 4/25/05 5:25:03 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1950 086D WATS Bldg 88 Moffett Airfield

ARF: 47173

Sample ID: 86-WOPT-1071

APPL ID: AX17953

Sample Collection Date: 4/18/05

QCG: S86TTS-050417BC-85849

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 12.4 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	0.92	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.4	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.55	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,1-Dichloroethane	1.6 J	6	1.3	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,1-Dichloroethene	3.0 J	6	0.90	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.82	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.71	ug/Kg	4/19/05	4/19/05
EPA 8260B	2-Butanone	Not detected	57	0.81	ug/Kg	4/19/05	4/19/05
EPA 8260B	2-Hexanone	Not detected	57	0.18	ug/Kg	4/19/05	4/19/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	57	1.1	ug/Kg	4/19/05	4/19/05
EPA 8260B	Acetone	Not detected	110	3.2	ug/Kg	4/19/05	4/19/05
EPA 8260B	Benzene	Not detected	6	0.72	ug/Kg	4/19/05	4/19/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.79	ug/Kg	4/19/05	4/19/05
EPA 8260B	Bromoform	Not detected	6	0.91	ug/Kg	4/19/05	4/19/05
EPA 8260B	Bromomethane	Not detected	11	1.8	ug/Kg	4/19/05	4/19/05
EPA 8260B	Carbon disulfide	Not detected	6	1.2	ug/Kg	4/19/05	4/19/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.91	ug/Kg	4/19/05	4/19/05
EPA 8260B	Chlorobenzene	Not detected	6	0.56	ug/Kg	4/19/05	4/19/05
EPA 8260B	Chloroethane	Not detected	6	1.8	ug/Kg	4/19/05	4/19/05
EPA 8260B	Chloroform	Not detected	6	1.6	ug/Kg	4/19/05	4/19/05
EPA 8260B	Chloromethane	Not detected	6	2.1	ug/Kg	4/19/05	4/19/05
EPA 8260B	cis-1,2-Dichloroethene	130	6	1.2	ug/Kg	4/19/05	4/19/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.54	ug/Kg	4/19/05	4/19/05
EPA 8260B	Dibromochloromethane	Not detected	6	0.97	ug/Kg	4/19/05	4/19/05
EPA 8260B	Ethylbenzene	Not detected	6	0.73	ug/Kg	4/19/05	4/19/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.0	ug/Kg	4/19/05	4/19/05
EPA 8260B	Methylene chloride	Not detected	57	5.2	ug/Kg	4/19/05	4/19/05
EPA 8260B	Styrene	Not detected	6	0.79	ug/Kg	4/19/05	4/19/05
EPA 8260B	Tetrachloroethene	9.8	6	0.62	ug/Kg	4/19/05	4/19/05
EPA 8260B	Toluene	Not detected	6	0.74	ug/Kg	4/19/05	4/19/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.5	ug/Kg	4/19/05	4/19/05

J = Estimated value, below quantitation limit.

Run #: 0418C40  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed 4/25/05 5:25:03 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47173

Sample ID: 86-WOPT-1071

APPL ID: AX17953

Sample Collection Date: 4/18/05

QCG: \$86TTS-050417BC-85849

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.49	ug/Kg	4/19/05	4/19/05
EPA 8260B	Trichloroethene	54	6	0.81	ug/Kg	4/19/05	4/19/05
EPA 8260B	Vinyl Acetate	Not detected	57	1.1	ug/Kg	4/19/05	4/19/05
EPA 8260B	Vinyl chloride	Not detected	6	1.9	ug/Kg	4/19/05	4/19/05
EPA 8260B	Xylenes	Not detected	17	0.78	ug/Kg	4/19/05	4/19/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	118	52-149		%	4/19/05	4/19/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	97.9	65-135		%	4/19/05	4/19/05
EPA 8260B	Surrogate recovery: Toluene-d8	91.5	65-135		%	4/19/05	4/19/05

J = Estimated value, below quantitation limit.

Run #: 0418C40  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:25:03 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech F.W., Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1590.086D W/ATS Bldg 88 Moffett Airfield

ARF: 47173

Sample ID: 86-WOPT-1072

APPL ID: AX17954

Sample Collection Date: 4/18/05

QCG: S86TTS-050417BC-85349

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 19.7 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	1.0	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.5	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.60	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,1-Dichloroethane	3.0 J	6	1.4	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,1-Dichloroethene	6.3	6	0.98	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.90	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.77	ug/Kg	4/19/05	4/19/05
EPA 8260B	2-Butanone	Not detected	62	0.88	ug/Kg	4/19/05	4/19/05
EPA 8260B	2-Hexanone	Not detected	62	0.20	ug/Kg	4/19/05	4/19/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	62	1.2	ug/Kg	4/19/05	4/19/05
EPA 8260B	Acetone	Not detected	120	3.5	ug/Kg	4/19/05	4/19/05
EPA 8260B	Benzene	Not detected	6	0.78	ug/Kg	4/19/05	4/19/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.86	ug/Kg	4/19/05	4/19/05
EPA 8260B	Bromoform	Not detected	6	1.0	ug/Kg	4/19/05	4/19/05
EPA 8260B	Bromomethane	Not detected	12	2.0	ug/Kg	4/19/05	4/19/05
EPA 8260B	Carbon disulfide	Not detected	6	1.3	ug/Kg	4/19/05	4/19/05
EPA 8260B	Carbon tetrachloride	Not detected	6	1.0	ug/Kg	4/19/05	4/19/05
EPA 8260B	Chlorobenzene	Not detected	6	0.61	ug/Kg	4/19/05	4/19/05
EPA 8260B	Chloroethane	Not detected	6	1.9	ug/Kg	4/19/05	4/19/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	4/19/05	4/19/05
EPA 8260B	Chloromethane	Not detected	6	2.3	ug/Kg	4/19/05	4/19/05
EPA 8260B	cis-1,2-Dichloroethene	220	6	1.3	ug/Kg	4/19/05	4/19/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.59	ug/Kg	4/19/05	4/19/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.1	ug/Kg	4/19/05	4/19/05
EPA 8260B	Ethylbenzene	Not detected	6	0.80	ug/Kg	4/19/05	4/19/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/19/05	4/19/05
EPA 8260B	Methylene chloride	Not detected	62	5.7	ug/Kg	4/19/05	4/19/05
EPA 8260B	Styrene	Not detected	6	0.86	ug/Kg	4/19/05	4/19/05
EPA 8260B	Tetrachloroethene	18	6	0.67	ug/Kg	4/19/05	4/19/05
EPA 8260B	Toluene	Not detected	6	0.81	ug/Kg	4/19/05	4/19/05
EPA 8260B	trans-1,2-Dichloroethene	1.8 J	6	1.7	ug/Kg	4/19/05	4/19/05

J = Estimated value, below quantitation limit.

Run #: 0418C41  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:25:03 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47173

Sample ID: 86-WOFT-1072

APPL ID: AX17954

Sample Collection Date: 4/18/05

QCG: \$86TTS-050417BC-85849

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.54	ug/Kg	4/19/05	4/19/05
EPA 8260B	Trichloroethene	300	6	0.88	ug/Kg	4/19/05	4/19/05
EPA 8260B	Vinyl Acetate	Not detected	62	1.2	ug/Kg	4/19/05	4/19/05
EPA 8260B	Vinyl chloride	2.3 J	6	2.1	ug/Kg	4/19/05	4/19/05
EPA 8260B	Xylenes	Not detected	19	0.85	ug/Kg	4/19/05	4/19/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	115	52-149		%	4/19/05	4/19/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	104	65-135		%	4/19/05	4/19/05
EPA 8260B	Surrogate recovery: Toluene-d8	94.5	65-135		%	4/19/05	4/19/05

J = Estimated value, below quantitation limit.

Run #: 0418C41  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed 4/25/05 5:25:03 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47173

Sample ID: 86-WOPT-1073

APPL ID: AX17955

Sample Collection Date: 4/18/05

QCG: S86TTS-050417BC-85849

Method	Analyte	Result	FQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 21.2 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	1.0	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.6	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.61	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,1-Dichloroethane	Not detected	6	1.4	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,1-Dichloroethene	Not detected	6	1.0	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.91	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.79	ug/Kg	4/19/05	4/19/05
EPA 8260B	2-Butanone	Not detected	63	0.90	ug/Kg	4/19/05	4/19/05
EPA 8260B	2-Hexanone	Not detected	63	0.20	ug/Kg	4/19/05	4/19/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	63	1.2	ug/Kg	4/19/05	4/19/05
EPA 8260B	Acetone	Not detected	130	3.6	ug/Kg	4/19/05	4/19/05
EPA 8260B	Benzene	Not detected	6	0.80	ug/Kg	4/19/05	4/19/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.88	ug/Kg	4/19/05	4/19/05
EPA 8260B	Bromoform	Not detected	6	1.0	ug/Kg	4/19/05	4/19/05
EPA 8260B	Bromomethane	Not detected	13	2.0	ug/Kg	4/19/05	4/19/05
EPA 8260B	Carbon disulfide	Not detected	6	1.4	ug/Kg	4/19/05	4/19/05
EPA 8260B	Carbon tetrachloride	Not detected	6	1.0	ug/Kg	4/19/05	4/19/05
EPA 8260B	Chlorobenzene	Not detected	6	0.62	ug/Kg	4/19/05	4/19/05
EPA 8260B	Chloroethane	Not detected	6	2.0	ug/Kg	4/19/05	4/19/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	4/19/05	4/19/05
EPA 8260B	Chloromethane	Not detected	6	2.3	ug/Kg	4/19/05	4/19/05
EPA 8260B	cis-1,2-Dichloroethene	Not detected	6	1.4	ug/Kg	4/19/05	4/19/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.60	ug/Kg	4/19/05	4/19/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.1	ug/Kg	4/19/05	4/19/05
EPA 8260B	Ethylbenzene	Not detected	6	0.81	ug/Kg	4/19/05	4/19/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/19/05	4/19/05
EPA 8260B	Methylene chloride	Not detected	63	5.8	ug/Kg	4/19/05	4/19/05
EPA 8260B	Styrene	Not detected	6	0.88	ug/Kg	4/19/05	4/19/05
EPA 8260B	Tetrachloroethene	Not detected	6	0.69	ug/Kg	4/19/05	4/19/05
EPA 8260B	Toluene	Not detected	6	0.82	ug/Kg	4/19/05	4/19/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.7	ug/Kg	4/19/05	4/19/05

Run #: 0418C42

Instrument: Chico

Sequence: C050418

Dilution Factor: 1

Initials: LF

Printed: 4/25/05 5:25:03 PM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 83 Moffett Airfield

Sample ID: 86-WOPT-1073

Sample Collection Date: 4/18/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47173

APPL ID: AX17955

QCG: S86TTS-050417BC-85849

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.55	ug/Kg	4/19/05	4/19/05
EPA 8260B	Trichloroethene	Not detected	6	0.90	ug/Kg	4/19/05	4/19/05
EPA 8260B	Vinyl Acetate	Not detected	63	1.3	ug/Kg	4/19/05	4/19/05
EPA 8260B	Vinyl chloride	Not detected	6	2.1	ug/Kg	4/19/05	4/19/05
EPA 8260B	Xylenes	Not detected	19	0.86	ug/Kg	4/19/05	4/19/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	119	52-149		%	4/19/05	4/19/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	101	65-135		%	4/19/05	4/19/05
EPA 8260B	Surrogate recovery: Toluene-d8	93.0	65-135		%	4/19/05	4/19/05

Run #: 0418C42  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:25:03 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech F/W, Inc  
1340 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47173

Sample ID: 86-WOPT-1074

APPL ID: AX17956

Sample Collection Date: 4/18/05

QCG: \$86TTS-050417BC-85849

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 20.7 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	1.0	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.6	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.61	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,1-Dichloroethane	Not detected	6	1.4	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,1-Dichloroethene	Not detected	6	1.0	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.91	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.78	ug/Kg	4/19/05	4/19/05
EPA 8260B	2-Butanone	Not detected	63	0.90	ug/Kg	4/19/05	4/19/05
EPA 8260B	2-Hexanone	Not detected	63	0.20	ug/Kg	4/19/05	4/19/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	63	1.2	ug/Kg	4/19/05	4/19/05
EPA 8260B	Acetone	Not detected	130	3.5	ug/Kg	4/19/05	4/19/05
EPA 8260B	Benzene	Not detected	6	0.79	ug/Kg	4/19/05	4/19/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.87	ug/Kg	4/19/05	4/19/05
EPA 8260B	Bromoform	Not detected	6	1.0	ug/Kg	4/19/05	4/19/05
EPA 8260B	Bromomethane	Not detected	13	2.0	ug/Kg	4/19/05	4/19/05
EPA 8260B	Carbon disulfide	Not detected	6	1.4	ug/Kg	4/19/05	4/19/05
EPA 8260B	Carbon tetrachloride	Not detected	6	1.0	ug/Kg	4/19/05	4/19/05
EPA 8260B	Chlorobenzene	Not detected	6	0.62	ug/Kg	4/19/05	4/19/05
EPA 8260B	Chloroethane	Not detected	6	2.0	ug/Kg	4/19/05	4/19/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	4/19/05	4/19/05
EPA 8260B	Chloromethane	Not detected	6	2.3	ug/Kg	4/19/05	4/19/05
EPA 8260B	cis-1,2-Dichloroethene	Not detected	6	1.4	ug/Kg	4/19/05	4/19/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.59	ug/Kg	4/19/05	4/19/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.1	ug/Kg	4/19/05	4/19/05
EPA 8260B	Ethylbenzene	Not detected	6	0.81	ug/Kg	4/19/05	4/19/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/19/05	4/19/05
EPA 8260B	Methylene chloride	Not detected	63	5.8	ug/Kg	4/19/05	4/19/05
EPA 8260B	Styrene	Not detected	6	0.87	ug/Kg	4/19/05	4/19/05
EPA 8260B	Tetrachloroethene	Not detected	6	0.68	ug/Kg	4/19/05	4/19/05
EPA 8260B	Toluene	Not detected	6	0.82	ug/Kg	4/19/05	4/19/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.7	ug/Kg	4/19/05	4/19/05

Run #: 0418C38  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed 4/25/05 5:25 03 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47173

Sample ID: 86-WOPT-1074

APPL ID: AX17956

Sample Collection Date: 4/18/05

QCG: \$86TTS-050417BC-85849

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.54	ug/Kg	4/19/05	4/19/05
EPA 8260B	Trichloroethene	Not detected	6	0.90	ug/Kg	4/19/05	4/19/05
EPA 8260B	Vinyl Acetate	Not detected	63	1.3	ug/Kg	4/19/05	4/19/05
EPA 8260B	Vinyl chloride	Not detected	6	2.1	ug/Kg	4/19/05	4/19/05
EPA 8260B	Xylenes	Not detected	19	0.86	ug/Kg	4/19/05	4/19/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	105	52-149		%	4/19/05	4/19/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	93.5	65-135		%	4/19/05	4/19/05
EPA 8260B	Surrogate recovery: Toluene-d8	93.7	65-135		%	4/19/05	4/19/05

Run #: 0418C38  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed 4/25/05 5:25:03 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47173

Sample ID: 86-WOPT-1075

APPL ID: AX17957

Sample Collection Date: 4/18/05

QCG: \$86TTW-050418BM-8584

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/19/05	4/19/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/19/05	4/19/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/19/05	4/19/05
EPA 8260B	1,1-Dichloroethane	Not detected	0.5	0.19	ug/L	4/19/05	4/19/05
EPA 8260B	1,1-Dichloroethene	Not detected	0.5	0.30	ug/L	4/19/05	4/19/05
EPA 8260B	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/19/05	4/19/05
EPA 8260B	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/19/05	4/19/05
EPA 8260B	2-Butanone	Not detected	5	0.6	ug/L	4/19/05	4/19/05
EPA 8260B	2-Hexanone	Not detected	5	0.92	ug/L	4/19/05	4/19/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/19/05	4/19/05
EPA 8260B	Acetone	Not detected	5	0.95	ug/L	4/19/05	4/19/05
EPA 8260B	Benzene	Not detected	0.5	0.16	ug/L	4/19/05	4/19/05
EPA 8260B	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/19/05	4/19/05
EPA 8260B	Bromoform	Not detected	0.5	0.14	ug/L	4/19/05	4/19/05
EPA 8260B	Bromomethane	Not detected	1	0.24	ug/L	4/19/05	4/19/05
EPA 8260B	Carbon disulfide	Not detected	0.5	0.2	ug/L	4/19/05	4/19/05
EPA 8260B	Carbon tetrachloride	Not detected	0.5	0.10	ug/L	4/19/05	4/19/05
EPA 8260B	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/19/05	4/19/05
EPA 8260B	Chloroethane	Not detected	0.5	0.21	ug/L	4/19/05	4/19/05
EPA 8260B	Chloroform	Not detected	0.5	0.16	ug/L	4/19/05	4/19/05
EPA 8260B	Chloromethane	Not detected	0.5	0.31	ug/L	4/19/05	4/19/05
EPA 8260B	cis-1,2-Dichloroethene	Not detected	0.5	0.16	ug/L	4/19/05	4/19/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/19/05	4/19/05
EPA 8260B	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/19/05	4/19/05
EPA 8260B	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/19/05	4/19/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/19/05	4/19/05
EPA 8260B	Methylene chloride	Not detected	5	0.35	ug/L	4/19/05	4/19/05
EPA 8260B	Styrene	Not detected	0.5	0.25	ug/L	4/19/05	4/19/05
EPA 8260B	Tetrachloroethene	Not detected	0.5	0.15	ug/L	4/19/05	4/19/05
EPA 8260B	Toluene	Not detected	0.5	0.17	ug/L	4/19/05	4/19/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	0.5	0.19	ug/L	4/19/05	4/19/05

Run #: 0418M41

Instrument: Max

Sequence: M050414

Dilution Factor: 1

Initials: LF

Printed: 4/25/05 5:25:03 PM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1840 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield  
Sample ID: **86-WOPT-1075**  
Sample Collection Date: 4/18/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47173  
APPL ID: **AX17957**  
QCG: S86TTW-050418BM-8584

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropane	Not detected	0.5	0.18	ug/L	4/19/05	4/19/05
EPA 8260B	Trichloroethene	Not detected	0.5	0.16	ug/L	4/19/05	4/19/05
EPA 8260B	Vinyl Acetate	Not detected	5	0.31	ug/L	4/19/05	4/19/05
EPA 8260B	Vinyl chloride	Not detected	0.5	0.23	ug/L	4/19/05	4/19/05
EPA 8260B	Xylenes	Not detected	1.5	0.19	ug/L	4/19/05	4/19/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	114	62-139		%	4/19/05	4/19/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	93.5	75-125		%	4/19/05	4/19/05
EPA 8260B	Surrogate recovery: Toluene-d8	97.6	75-125		%	4/19/05	4/19/05

Run #: 0418M41  
Instrument: Max  
Sequence: M050414  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:25:03 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Coere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: **86-WOPT-1066**

Sample Collection Date: 4/18/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47173

APPL ID: **AX17948**

Method	Analyte	Result	POL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	206	25	0.14	mg/L	4/25/05	4/27/05
6010B	Calcium (Ca)	201 E	5	0.0272	mg/L	4/25/05	4/27/05
6010B	Iron (Fe)	19.1	0.1	0.0258	mg/L	4/25/05	4/27/05
6010B	Magnesium (Mg)	88.0	5	0.0129	mg/L	4/25/05	4/27/05
6010B	Potassium (K)	3.5 J	5	0.0995	mg/L	4/25/05	4/27/05
6010B	Sodium (Na)	43.1	5	0.1111	mg/L	4/25/05	4/27/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Printed: 5/3/05 4:43:17 PM  
PL-F1-SC-MCPQL-MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1067

Sample Collection Date: 4/18/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47173

APPL ID: AX17949

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	482	25	0.14	mg/L	4/25/05	4/27/05
6010B	Calcium (Ca)	474 E	5	0.0272	mg/L	4/25/05	4/27/05
6010B	Iron (Fe)	19.7	0.1	0.0258	mg/L	4/25/05	4/27/05
6010B	Magnesium (Mg)	89.1	5	0.0129	mg/L	4/25/05	4/27/05
6010B	Potassium (K)	11.8	5	0.0995	mg/L	4/25/05	4/27/05
6010B	Sodium (Na)	49.0	5	0.1111	mg/L	4/25/05	4/27/05

E = The reported value exceeds linear range.

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2L-F1-SC-MCRes/MCPQL-REG MDLs



## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1068

Sample Collection Date: 4/18/05

ARF: 47173

APPL ID: AX17950

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	537	50	0.27	mg/L	4/25/05	4/27/05
6010B	Calcium (Ca)	541 E	5	0.0272	mg/L	4/25/05	4/27/05
6010B	Iron (Fe)	14.7	0.1	0.0258	mg/L	4/25/05	4/27/05
6010B	Magnesium (Mg)	91.7	5	0.0129	mg/L	4/25/05	4/27/05
6010B	Potassium (K)	9.1	5	0.0995	mg/L	4/25/05	4/27/05
6010B	Sodium (Na)	51.1	25	0.56	mg/L	4/25/05	4/27/05
6010B	Sodium (Na)	51.3 E	5	0.1111	mg/L	4/25/05	4/27/05

E = The reported value exceeds linear range.

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2L-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47173

Sample ID: 86-WOPT-1069

APPL ID: AX17951

Sample Collection Date: 4/18/05

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	356	25	0.14	mg/L	4/25/05	4/27/05
6010B	Calcium (Ca)	343 E	5	0.0272	mg/L	4/25/05	4/27/05
6010B	Iron (Fe)	24.1	0.1	0.0258	mg/L	4/25/05	4/27/05
6010B	Magnesium (Mg)	67.2	5	0.0129	mg/L	4/25/05	4/27/05
6010B	Potassium (K)	9.2	5	0.0995	mg/L	4/25/05	4/27/05
6010B	Sodium (Na)	49.4	5	0.1111	mg/L	4/25/05	4/27/05

E = The reported value exceeds linear range.

Printed: 5/3/05 4:43:17 PM

L-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.088D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-562

Sample Collection Date: 4/18/05

APPL ID: AX17940

ARF: 47173

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 23.5 Percent Moisture.)							
CLP MOIST	Moisture	23.5	2.0		%	4/18/05	4/18/05

Printed: 5/6/05 10:21:03 AM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-563**

Sample Collection Date: 4/18/05

**APPL ID: AX17941**

ARF: 47173

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 16.4 Percent Moisture.)							
CLP MOIST	Moisture	16.4	2.0		%	4/18/05	4/18/05

Printed: 5/6/05 10:21:03 AM

4PPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-564

Sample Collection Date: 4/18/05

APPL ID: AX17942

ARF: 47173

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 18.3 Percent Moisture.)							
CLP MOIST	Moisture	18.3	2.0		%	4/18/05	4/18/05

Printed: 5/6/05 10:21:03 AM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-565**

Sample Collection Date: 4/18/05

**APPL ID: AX17943**

ARF: 47173

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 16.8 Percent Moisture.)							
CLP MOIST	Moisture	16.8	2.0		%	4/18/05	4/18/05

Printed: 5/6/05 10:21:03 AM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-566

Sample Collection Date: 4/18/05

APPL ID: AX17944

ARF: 47173

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 18.8 Percent Moisture.)							
CLP MOIST	Moisture	18.8	2.0		%	4/18/05	4/18/05

Printed: 5/6/05 10:21:03 AM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-567**

Sample Collection Date: 4/18/05

**APPL ID: AX17945**

ARF: 47173

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 16.8 Percent Moisture.)							
CLP MOIST	Moisture	16.8	2.0		%	4/18/05	4/18/05

Printed: 5/6/05 10:21:03 AM

APPL-F1-SC-MCRes/MCPQL-REG MDLs



## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-568**

Sample Collection Date: 4/18/05

**APPL ID: AX17946**

ARF: 47173

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
SW846 9060	Total Organic Carbon	8.1	0.5	0.129	mg/L	4/28/05	4/28/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1066

Sample Collection Date: 4/18/05

APPL ID: AX17948

ARF: 47173

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	33800	1000	80	ug/L	4/20/05	4/20/05
EPA 300.0	Nitrate	4140	200	15	ug/L	4/20/05	4/20/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/20/05	4/20/05
EPA 300.0	Sulfate	220000 E	1000	90	ug/L	4/20/05	4/20/05
EPA 300.0	Sulfate	183000	5000	450	ug/L	4/20/05	4/20/05
EPA 310.1	Bicarbonate	438	5	0.787	mg/L	4/25/05	4/25/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/25/05	4/25/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

Sample ID: **86-WOPT-1067**

Sample Collection Date: 4/18/05

APPL ID: **AX17949**

ARF: 47173

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	36800	1000	80	ug/L	4/20/05	4/20/05
EPA 300.0	Nitrate	3350	200	15	ug/L	4/20/05	4/20/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/20/05	4/20/05
EPA 300.0	Sulfate	259000 E	1000	90	ug/L	4/20/05	4/20/05
EPA 300.0	Sulfate	215000	5000	450	ug/L	4/20/05	4/20/05
EPA 310.1	Bicarbonate	350	5	0.787	mg/L	4/25/05	4/25/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/25/05	4/25/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1068

Sample Collection Date: 4/18/2005

APPL ID: AX17950

ARF: 47173

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	41000	1000	80	ug/L	4/20/2005	4/20/2005
EPA 300.0	Nitrate	4170	200	15	ug/L	4/20/2005	4/20/2005
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/20/2005	4/20/2005
EPA 300.0	Sulfate	305000 E	1000	90	ug/L	4/20/2005	4/20/2005
EPA 300.0	Sulfate	256000	5000	450	ug/L	4/20/2005	4/20/2005
EPA 310.1	Bicarbonate	326	5	0.787	mg/L	4/25/2005	4/25/2005
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/25/2005	4/25/2005

E = The reported value exceeds linear range.

**AMENDED PAGE**

Printed: 6/27/2005 8:58:05 AM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-1069**

Sample Collection Date: 4/18/05

**APPL ID: AX17951**

ARF: 47173

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	19500	1000	80	ug/L	4/20/05	4/20/05
EPA 300.0	Nitrate	3230	200	15	ug/L	4/20/05	4/20/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/20/05	4/20/05
EPA 300.0	Sulfate	38500	1000	90	ug/L	4/20/05	4/20/05
EPA 310.1	Bicarbonate	237	5	0.787	mg/L	4/25/05	4/25/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/25/05	4/25/05

Printed: 5/5/05 10:21:03 AM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1070

Sample Collection Date: 4/18/05

APPL ID: AX17952

ARF: 47173

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 20.5 Percent Moisture.)							
CLP MOIST	Moisture	20.5	2.0		%	4/18/05	4/18/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1071

Sample Collection Date: 4/18/05

APPL ID: AX17953

ARF: 47173

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 12.4 Percent Moisture.)							
CLP MOIST	Moisture	12.4	2.0		%	4/18/05	4/18/05

Printed: 5/6/05 10:21:03 AM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-1072**

Sample Collection Date: 4/18/05

**APPL ID: AX17954**

ARF: 47173

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 19.7 Percent Moisture.)							
CLP MOIST	Moisture	19.7	2.0		%	4/18/05	4/18/05

Printed: 5/6/05 10:21:03 AM

APPL-F1-SC-MCRes/MCPQL-REG MDLs



## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-1073**

Sample Collection Date: 4/18/05

**APPL ID: AX17955**

ARF: 47173

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 21.2 Percent Moisture.)							
CLP MOIST	Moisture	21.2	2.0		%	4/18/05	4/18/05

Printed: 5/6/05 10:21:03 AM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1074

Sample Collection Date: 4/18/05

APPL ID: AX17956

ARF: 47173

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 20.7 Percent Moisture.)							
CLP MOIST	Moisture	20.7	2.0		%	4/18/05	4/18/05

Printed 5/6/05 10:21:03 AM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1075

Sample Collection Date: 4/18/05

APPL ID: AX17957

ARF: 47173

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
SW846 9060	Total Organic Carbon	6.2	0.5	0.129	mg/L	4/28/05	4/28/05

Printed: 5/6/05 10:21:03 AM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

May 2, 2005

Service Request No: K2502849

Robert Wise  
APPL, Inc.  
4203 W. Swift Avenue  
Fresno, CA 93722

**RE: 47173**

Dear Robert:

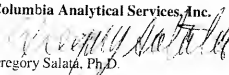
Enclosed are the results of the sample(s) submitted to our laboratory on April 20, 2005. For your reference, these analyses have been assigned our service request number K2502849.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3376.

Respectfully submitted,

**Columbia Analytical Services, Inc.**

  
Gregory Salata, Ph.D.  
Project Chemist

GS/dj

Page 1 of 15

COLUMBIA ANALYTICAL SERVICES, INC.

Client: Agriculture & Priority Pollutants Labs  
Project: 47173  
Sample Matrix: Soil

Service Request No.: K2502849  
Date Received: 04/20/05

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier III validation deliverables including summary forms and all of the associated raw data for each of the analyses. When appropriate to the method, method blank results have been reported with each analytical test.

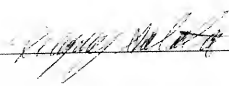
Sample Receipt

Eleven soil samples were received for analysis at Columbia Analytical Services on 04/20/05. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

General Chemistry Parameters

No anomalies associated with the analysis of these samples were observed.

Approved by



Date

5/6/05

00005

## COLUMBIA ANALYTICAL SERVICES, INC.

## Analytical Report

Client : Agriculture & Priority Pollutants Labs  
 Project Name : NA  
 Project Number : 47173  
 Sample Matrix : SOIL

Service Request : K2502849  
 Date Collected : 04/18/05  
 Date Received : 04/20/05

## Carbon, Total Organic

Analysis Method : Walkley-Black  
 Test Notes :

Units : mg/Kg (ppm)  
 Basis : Dry

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
86-WOPT-562	K2502849-001	2000	900	1	04/26/05	1950	J
86-WOPT-563	K2502849-002	2000	900	1	04/26/05	1100	J
86-WOPT-564	K2502849-003	2000	900	1	04/26/05	ND	
86-WOPT-565	K2502849-004	2000	900	1	04/26/05	ND	
86-WOPT-566	K2502849-005	2000	900	1	04/26/05	ND	
86-WOPT-567	K2502849-006	2000	900	1	04/26/05	ND	
86-WOPT-1070	K2502849-007	2000	900	1	04/26/05	ND	
86-WOPT-1071	K2502849-008	2000	900	1	04/26/05	ND	
86-WOPT-1072	K2502849-009	2000	900	1	04/26/05	ND	
86-WOPT-1073	K2502849-010	2000	900	1	04/26/05	ND	
86-WOPT-1074	K2502849-011	2000	900	1	04/26/05	ND	
Method Blank	K2502849-MB	2000	900	1	04/26/05	ND	

00010

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Moffett Air Field, Building 88, CTO 86  
**Collection Date:** April 18, 2005  
**LDC Report Date:** May 26, 2005  
**Matrix:** Soil/Water  
**Parameters:** Volatiles  
**Validation Level:** EPA Level III & IV  
**Laboratory:** APPL, Inc.

**Sample Delivery Group (SDG):** 47173

### Sample Identification

86-WOPT-561  
86-WOPT-562\*\*  
86-WOPT-562DL\*\*  
86-WOPT-563  
86-WOPT-563DL  
86-WOPT-564  
86-WOPT-564DL  
86-WOPT-565  
86-WOPT-566  
86-WOPT-566DL  
86-WOPT-567\*\*  
86-WOPT-567DL\*\*  
86-WOPT-568  
86-WOPT-1070  
86-WOPT-1071  
86-WOPT-1072  
86-WOPT-1073  
86-WOPT-1074\*\*  
86-WOPT-1075

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 16 soil samples and 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.



## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 15.0% for each individual compound and less than or equal to 30.0% for calibration check compounds (CCCs).

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination ( $r^2$ ) was greater than or equal to 0.990 .

Average relative response factors (RRF) for all system performance check compounds (SPCCs) were within method and validation criteria.

## IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 20.0% for all compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
4/19/05 (0418C33S)	2-Hexanone	26	86-WOPT-562** 86-WOPT-563 86-WOPT-564 86-WOPT-565 86-WOPT-566 86-WOPT-567** 86-WOPT-1070 86-WOPT-1071 86-WOPT-1072 86-WOPT-1073 86-WOPT-1074** 050419S	J (all detects) UJ (all non-detects)	A

Date	Compound	%D	Associated Samples	Flag	A or P
4/19/05 (0418M24W)	Acetone	21	All water samples in SDG 47173	J (all detects) UJ (all non-detects)	A

All of the continuing calibration RRF values for all system performance check compounds (SPCCs) were within method and validation criteria.

#### **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

#### **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

#### **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

#### **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### **IX. Regional Quality Assurance and Quality Control**

Not applicable.

#### **X. Internal Standards**

All internal standard areas and retention times were within QC limits.

#### **XI. Target Compound Identifications**

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

#### **XII. Compound Quantitation and CRQLs**

All compound quantitation and CRQLs were within validation criteria with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
86-WOPT-566 86-WOPT-567**	Tetrachloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	A
86-WOPT-562**	cis-1,2-Dichloroethene Tetrachloroethene Trichloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects) J (all detects)	A
86-WOPT-563	cis-1,2-Dichloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	A
86-WOPT-564	Tetrachloroethene cis-1,2-Dichloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects)	A

Raw data were not evaluated for the samples reviewed by Level III criteria.

### XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

### XIV. System Performance

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

### XV. Overall Assessment

Data flags are summarized at the end of this report if data has been qualified.

### XVI. Field Duplicates

No field duplicates were identified in this SDG.

### XVII. Field Blanks

Sample 86-WOPT-561 was identified as a trip blank. No volatile contaminants were found in this blank with the following exceptions:

Trip Blank ID	Compound	Concentration (ug/L)
86-WOPT-561	Acetone	6.5
	Methylene chloride	0.61

Samples 86-WOPT-568 and 86-WOPT-1075 were identified as equipment rinsates. No volatile contaminants were found in these blanks.

**Moffett Air Field, Building 88, CTO 86**  
**Volatiles - Data Qualification Summary - SDG 47173**

SDG	Sample	Compound	Flag	A or P	Reason
47173	86-WOPT-562** 86-WOPT-563 86-WOPT-564 86-WOPT-565 86-WOPT-566 86-WOPT-567** 86-WOPT-1070 86-WOPT-1071 86-WOPT-1072 86-WOPT-1073 86-WOPT-1074**	2-Hexanone	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
47173	86-WOPT-561 86-WOPT-568 86-WOPT-1075	Acetone	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
47173	86-WOPT-566 86-WOPT-567**	Tetrachloroethene	J (all detects)	A	Compound quantitation and CRQLs
47173	86-WOPT-562**	cis-1,2-Dichloroethene Tetrachloroethene Trichloroethene	J (all detects) J (all detects)	A	Compound quantitation and CRQLs
47173	86-WOPT-563	cis-1,2-Dichloroethene	J (all detects)	A	Compound quantitation and CRQLs
47173	86-WOPT-564	Tetrachloroethene cis-1,2-Dichloroethene	J (all detects) J (all detects)	A	Compound quantitation and CRQLs

**Moffett Air Field, Building 88, CTO 86**  
**Volatiles - Laboratory Blank Data Qualification Summary - SDG 47173**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.**  
**Data Validation Report**

**Project/Site Name:** Moffett Air Field, Building 88, CTO 86

**Collection Date:** April 18, 2005

**LDC Report Date:** May 26, 2005

**Matrix:** Water

**Parameters:** Volatiles

**Validation Level:** EPA Level III & IV

**Laboratory:** APPL, Inc.

**Sample Delivery Group (SDG):** 47173

**Sample Identification**

86-WOPT-1065  
86-WOPT-1066  
86-WOPT-1066DL  
86-WOPT-1067  
86-WOPT-1067DL  
86-WOPT-1068  
86-WOPT-1068DL  
86-WOPT-1069\*\*

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 8 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Contract Laboratory Program Statement of Work (SOW) OLM04.2 for Volatiles.

This review follows USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999); the following subsections correlate to the above guidelines.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 30.0% for all compounds with the following exceptions:

Date	Compound	%RSD	Associated Samples	Flag	A or P
4/18/05	Bromomethane	35	86-WOPT-1065 86-WOPT-1066 86-WOPT-1067 86-WOPT-1068 86-WOPT-1069** 050419W1	J (all detects) UJ (all non-detects)	A

Average relative response factors (RRF) for all volatile target compounds and system monitoring compounds were within validation criteria.

## IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 25.0% .

All of the continuing calibration RRF values were within validation criteria.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.



## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the SOW. All surrogate recoveries (%R) were within QC limits.

## VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## VIII. Laboratory Control Samples (LCS)

Although laboratory control samples were not required by the method, laboratory control samples were reported by the laboratory. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## IX. Regional Quality Assurance and Quality Control

Not applicable.

## X. Internal Standards

All internal standard areas and retention times were within QC limits.

## XI. Target Compound Identifications

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
86-WOPT-1066	cis-1,2-Dichloroethene Tetrachloroethene Trichloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects) J (all detects)	A
86-WOPT-1067 86-WOPT-1068	cis-1,2-Dichloroethene Trichloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects)	A

Raw data were not evaluated for the samples reviewed by Level III criteria.

### **XIII. Tentatively Identified Compounds (TICs)**

Tentatively identified compounds were not reported by the laboratory.

### **XIV. System Performance**

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

### **XV. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

### **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

### **XVII. Field Blanks**

Sample 86-WOPT-1065 was identified as a trip blank. No volatile contaminants were found in this blank with the following exceptions:

<b>Trip Blank ID</b>	<b>Compound</b>	<b>Concentration (ug/L)</b>
86-WOPT-1065	Acetone Methylene chloride	7.3 0.50

**Moffett Air Field, Building 88, CTO 86**  
**Volatiles - Data Qualification Summary - SDG 47173**

SDG	Sample	Compound	Flag	A or P	Reason
47173	86-WOPT-1065 86-WOPT-1066 86-WOPT-1067 86-WOPT-1068 86-WOPT-1069**	Bromomethane	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Initial calibration (%RSD)
47173	86-WOPT-1066	cis-1,2-Dichloroethene Tetrachloroethene Trichloroethene	J (all detects) J (all detects) J (all detects)	A	Compound quantitation and CRQLs
47173	86-WOPT-1067 86-WOPT-1068	cis-1,2-Dichloroethene Trichloroethene	J (all detects) J (all detects)	A	Compound quantitation and CRQLs

**Moffett Air Field, Building 88, CTO 86**  
**Volatiles - Laboratory Blank Data Qualification Summary - SDG 47173**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.**  
**Data Validation Report**

**Project/Site Name:** Moffett Air Field, Building 88, CTO 86

**Collection Date:** April 18, 2005

**LDC Report Date:** May 26, 2005

**Matrix:** Water

**Parameters:** Metals

**Validation Level:** EPA Level III & IV

**Laboratory:** APPL, Inc.

**Sample Delivery Group (SDG):** 47173

**Sample Identification**

86-WOPT-1066

86-WOPT-1066DL

86-WOPT-1067

86-WOPT-1067DL

86-WOPT-1068

86-WOPT-1068DL

86-WOPT-1069\*\*

86-WOPT-1069DL\*\*

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 8 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 6010B for Metals. The metals analyzed were Calcium, Iron, Magnesium, Potassium, and Sodium.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

## III. Blanks

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Calcium Magnesium Sodium	0.030 mg/L 0.016 mg/L 0.33 mg/L	All samples in SDG 47173

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or were significantly greater ( $>5X$  blank contaminants) than the concentrations found in the associated method blanks.

## IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

## V. Matrix Spike Analysis

The laboratory has indicated that there were no matrix spike (MS) analyses specified for the samples in this SDG, and therefore matrix spike analyses were not performed for this SDG.

## VI. Duplicate Sample Analysis

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

## VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Internal Standards

ICP-MS was not utilized in this SDG.

## IX. Furnace Atomic Absorption QC

Graphite furnace atomic absorption was not utilized in this SDG.

## X. ICP Serial Dilution

ICP serial dilution was not performed for this SDG.

## XI. Sample Result Verification

All sample result verification met validation criteria with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
86-WOPT-1066 86-WOPT-1067 86-WOPT-1069**	Calcium	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	A
86-WOPT-1068	Calcium Sodium	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects)	A

Raw data were not evaluated for samples reviewed by Level III criteria.

## XII. Overall Assessment of Data

Data flags have been summarized at the end of this report.

## XIII. Field Duplicates

No field duplicates were identified in this SDG.

#### **XIV. Field Blanks**

No field blanks were identified in this SDG.



**Moffett Air Field, Building 88, CTO 86**  
**Metals - Data Qualification Summary - SDG 47173**

SDG	Sample	Analyte	Flag	A or P	Reason
47173	86-WOPT-1066 86-WOPT-1067 86-WOPT-1069**	Calcium	J (all detects)	A	Sample result verification
47173	86-WOPT-1068	Calcium Sodium	J (all detects) J (all detects)	A	Sample result verification

**Moffett Air Field, Building 88, CTO 86**  
**Metals - Laboratory Blank Data Qualification Summary - SDG 47173**

No Sample Data Qualified in this SDG

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Moffett Air Field, Building 88, CTO 86  
**Collection Date:** April 18, 2005  
**LDC Report Date:** May 26, 2005  
**Matrix:** Soil/Water  
**Parameters:** Wet Chemistry  
**Validation Level:** EPA Level III & IV  
**Laboratory:** APPL, Inc./Columbia Analytical Services, Inc.  
**Sample Delivery Group (SDG):** 47173/K2502849

### Sample Identification

86-WOPT-562**	86-WOPT-562DUP
86-WOPT-563	86-WOPT-1069MS
86-WOPT-564	
86-WOPT-565	
86-WOPT-566	
86-WOPT-567**	
86-WOPT-568	
86-WOPT-1066	
86-WOPT-1066DL	
86-WOPT-1067	
86-WOPT-1067DL	
86-WOPT-1068	
86-WOPT-1068DL	
86-WOPT-1069**	
86-WOPT-1070	
86-WOPT-1071	
86-WOPT-1072	

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 12 soil samples and 10 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 300.0 for Chloride, Nitrate, Nitrite, and Sulfate, EPA Method 310.1 for Carbonate and Bicarbonate, and Walkley-Black method and EPA SW 846 Method 9060 for Total Organic Carbon.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section IX.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met with the following exceptions:

Sample	Analyte	Total Time From Sample Collection Until Analysis	Required Holding Time From Sample Collection Until Analysis	Flag	A or P
86-WOPT-1066 86-WOPT-1067	Nitrate	55 hours	48 hours	J (all detects) UJ (all non-detects)	P
	Nitrite	55 hours	48 hours	J (all detects) UJ (all non-detects)	
86-WOPT-1068	Nitrate	54.75 hours	48 hours	J (all detects) UJ (all non-detects)	P
	Nitrite	54.75 hours	48 hours	J (all detects) UJ (all non-detects)	
86-WOPT-1069**	Nitrate	54.25 hours	48 hours	J (all detects) UJ (all non-detects)	P
	Nitrite	54.25 hours	48 hours	J (all detects) UJ (all non-detects)	

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

### a. Initial Calibration

All criteria for the initial calibration of each method were met.

### b. Calibration Verification

Calibration verification frequency and analysis criteria were met for each method when applicable.

## III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the method blanks with the following exceptions:

Method Blank ID	Analyte	Concentration	Associated Samples
ICB/CCB	Chloride	2.47 mg/L	86-WOPT-1066 86-WOPT-1067 86-WOPT-1068 86-WOPT-1069**

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks.

#### **IV. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

#### **V. Duplicates**

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

#### **VI. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### **VII. Sample Result Verification**

All sample result verification met validation criteria with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
86-WOPT-1066 86-WOPT-1067 86-WOPT-1068	Sulfate	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	A

Raw data were not evaluated for the samples reviewed by Level III criteria.

#### **VIII. Overall Assessment of Data**

Data flags are summarized at the end of this report.

#### **IX. Field Duplicates**

No field duplicates were identified in this SDG.

#### **X. Field Blanks**

Samples 86-WOPT-568 and 86-WOPT-1075 were identified as equipment rinsates. No contaminant concentrations were found in these blanks with the following exceptions:

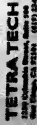
Equipment Rinse ID	Analyte	Concentration (mg/L)
86-WOPT-568	Total organic carbon	8.1
86-WOPT-1075	Total organic carbon	6.2

**Moffett Air Field, Building 88, CTO 86****Wet Chemistry - Data Qualification Summary - SDG 47173/K2502849**

SDG	Sample	Analyte	Flag	A or P	Reason
47173/ K2502849	86-WOPT-1066	Nitrate	J (all detects)	P	Technical holding times
	86-WOPT-1067	Nitrite	UU (all non-detects)		
	86-WOPT-1068		J (all detects)		
	86-WOPT-1069**		UU (all non-detects)		
47173/ K2502849	86-WOPT-1066	Sulfate	J (all detects)	A	Sample result verification
	86-WOPT-1067				
	86-WOPT-1068				

**Moffett Air Field, Building 88, CTO 86****Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 47173/K2502849**

No Sample Data Qualified in this SDG

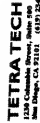


## CHAIN-OF-CUSTODY RECORD

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management

0047189-12





NUMBER 10390

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management

00471584-1



NUMBER 10368

CHAIN-OF-CUSTODY RECORD

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management

[illegible]

Data Validation Package  
for  
Moffett Air Field, WATS Building 88, CTO 86  
ARF 47189

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## Case Narrative

ARF: 47189

Project: 1990.086D WATS Bldg 88 Moffett Airfield

State Certification Number: CA1312

Results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

### Sample Receipt Information:

The sample group was received April 19, 2005, at 3.0°C and 3.5°C. The samples were assigned Analytical Request Form (ARF) number 47189. The sample numbers and requested analyses were compared to the chains of custody. No exception was noted.

Sample Table

CLIENT ID	APPL ID	Matrix	Date Sampled	Date Received
86-WOPT-569	AX18051	WATER	4/19/05	4/19/05
86-WOPT-570	AX18052	WATER	4/19/05	4/19/05
86-WOPT-571	AX18053	WATER	4/19/05	4/19/05
86-WOPT-572	AX18054	WATER	4/19/05	4/19/05
86-WOPT-573	AX18055	WATER	4/19/05	4/19/05
86-WOPT-574	AX18056	WATER	4/19/05	4/19/05
86-WOPT-575	AX18057	WATER	4/19/05	4/19/05
86-WOPT-1076	AX18058	WATER	4/19/05	4/19/05
86-WOPT-1077	AX18059	WATER	4/19/05	4/19/05
86-WOPT-1078	AX18060	WATER	4/19/05	4/19/05
86-WOPT-1079	AX18061	WATER	4/19/05	4/19/05
86-WOPT-1080	AX18062	WATER	4/19/05	4/19/05
86-WOPT-1081	AX18063	WATER	4/19/05	4/19/05
86-WOPT-1082	AX18064	WATER	4/19/05	4/19/05
86-WOPT-1083	AX18065	WATER	4/19/05	4/19/05
86-WOPT-1084	AX18066	SOIL	4/19/05	4/19/05
86-WOPT-1085	AX18067	SOIL	4/19/05	4/19/05
86-WOPT-1086	AX18068	SOIL	4/19/05	4/19/05
86-WOPT-1087	AX18069	SOIL	4/19/05	4/19/05
86-WOPT-1088	AX18070	SOIL	4/19/05	4/19/05
86-WOPT-1089	AX18071	SOIL	4/19/05	4/19/05
86-WOPT-1090	AX18072	WATER	4/19/05	4/19/05

**EPA Method 8260B  
and CLP Volatiles  
Volatile Organic Analysis**

**Sample Preparation:**

The samples were purged according to EPA method 5030B, 5035, and CLP. All holding times were met.

**Sample Analysis Information:**

The samples were analyzed according to the method using a Hewlett Packard Gas Chromatograph with a mass spectrometer detector.

**Quality Control/Assurance**

**Calibrations:**

Initial and continuing calibrations were performed according to the method. For the continuing calibration verification performed on Neo file ID: 0419N02W.D, Chloroethane had a 38%D. All other calibration criteria were met.

**Blanks:**

For the 050420AM method blank, Acetone was detected below the reporting limit but above the MDL at 1.1 µg/L. Acetone was not detected in the associated sample. No other target analyte was detected above the reporting limits in the method blanks.

**Spikes:**

Laboratory Control Spikes (LCS) were used for quality assurance. A second-source standard was used for the LCS. All spike and second-source criteria were met.

Sample 86-WOPT was designated by the client for MS/MSD analysis. For the MS/MSD, 1,1-Dichloroethene recovered below the 75% lower control limit at -38.0% and -84.0% and Trichloroethene below the 71% lower control limit at -1400% and -2200%. The concentration of 1,1-Dichloroethene and Trichloroethene in the parent sample were greater than five times the spiking concentration.

**Surrogates**

All surrogate recoveries were within control limits.

**Tuning:**

The instrument was tuned using BFB. All method criteria were met.

**Internal Standards**

The internal standard area counts were compared to the mid-point of the initial calibration according to method 8260. The internal standard area counts were compared to the continuing calibration according to CLP. All method criteria were met.

**Summary:**

No additional problem was encountered.

## **EPA Methods 6010B**

### **Metals**

#### **Digestion Information:**

The water was digested according to EPA methods 3010A. No exceptions were encountered. All holding times were met.

#### **Analysis Information:**

##### **Samples:**

The sample was analyzed for dissolved metals according to EPA method 6010B using a Perkin Elmer Optima 4300DV.

##### **Calibrations:**

Calibrations were performed according to the methods for the initial calibration and the initial calibration verification. The initial calibration verification is prepared from a second source standard.

##### **Blanks:**

Calcium, Magnesium, and Sodium were detected below the reporting limit but above the MDL in the 050425A method blank at 0.030mg/L, 0.016mg/L, and 0.33mg/L respectively. No other target metal was detected above the reporting limits in the method blank.

##### **Spikes:**

Laboratory Control Spikes (LCS/LCSD) were used for quality assurance. LCS recoveries were within acceptance limits.

Sample 86-WOPT was designated by the client for MS/MSD analysis. For the MS/MSD, Iron recovered above the 120% upper control limit at 160% and 620% and Calcium recovered below the 80% lower control limit at 68.0% in the MS. All other recoveries met acceptance criteria.

#### **Summary:**

No analytical exception is noted. All data are acceptable.

## **EPA Methods 300.0, 310.1 and 9060A**

### **Anions, Carbonates & Bi-carbonates and Total Organic Carbon**

#### **Sample Preparation Information:**

A Dionex DX500 ion chromatograph was used for the EPA 300.0 analysis. The TOC was analyzed using a Shimadzu TOC-5050A instrument. The samples were screened down to the MDL.

#### **Analysis Information:**

##### **Samples:**

The sample was analyzed according to the methods. A Dionex DX500 ion chromatograph was used for the EPA 300.0 analysis.

##### **Calibrations:**

Calibrations were performed according to the methods for the initial calibration and the initial calibration verification. The initial calibration verification is prepared from a second source standard.

##### **Blanks:**

No target analyte was detected above the reporting limits in the method blanks.

##### **Spikes:**

Laboratory Control Spikes (LCS/LCSD) and Sample Duplicates were used for quality assurance. All recoveries met acceptance criteria.

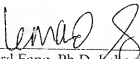
Sample 86-WOPT was designated by the client for MS/MSD analysis. For the MS/MSD, Sulfate recovered below the 80% lower control limit at 78.7% and 78.0%. All other recoveries met acceptance criteria.

#### **Summary:**

No analytical exception is noted.

## CERTIFICATION

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the hard copy has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

 5/14/05  
\_\_\_\_\_  
Leonard Fong, Ph.D, Laboratory Director / Date



# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Blenkowski

Project: 1990 086D WATS Bldg 83 Moffett Airfield

Sample ID: 86-WOPT-569

Sample Collection Date: 4/19/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47189

APPL ID: AX18051

QCG: SC42VT-050419AN-85937

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/19/05	4/19/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/19/05	4/19/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	0.5	0.21	ug/L	4/19/05	4/19/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/19/05	4/19/05
CLP VOL	1,1-Dichloroethane	Not detected	0.5	0.19	ug/L	4/19/05	4/19/05
CLP VOL	1,1-Dichloroethene	Not detected	0.5	0.30	ug/L	4/19/05	4/19/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/19/05	4/19/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/19/05	4/19/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/19/05	4/19/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/19/05	4/19/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/19/05	4/19/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/19/05	4/19/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/19/05	4/19/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/19/05	4/19/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/19/05	4/19/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/19/05	4/19/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/19/05	4/19/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/19/05	4/19/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/19/05	4/19/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/19/05	4/19/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	4/19/05	4/19/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/19/05	4/19/05
CLP VOL	cis-1,2-Dichloroethene	Not detected	0.5	0.16	ug/L	4/19/05	4/19/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/19/05	4/19/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/19/05	4/19/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/19/05	4/19/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/19/05	4/19/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/19/05	4/19/05
CLP VOL	Methylene Chloride	0.43 J	0.5	0.35	ug/L	4/19/05	4/19/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/19/05	4/19/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/19/05	4/19/05

J = Estimated value, below quantitation limit.

Run #: 0419N07  
Instrument: Neo  
Sequence: N050418  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:26:26 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Eienkowski

Project: 1990.086D WATS Bldg 68 Moffett Airfield

Sample ID: 86-WOPT-569

Sample Collection Date: 4/19/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47189

APPL ID: AX18051

QCG: SC42VT-050419AN-85397

Method	Analyte	Result	POL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	Not detected	0.5	0.15	ug/L	4/19/05	4/19/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/19/05	4/19/05
CLP VOL	trans-1,2-Dichloroethene	Not detected	0.5	0.19	ug/L	4/19/05	4/19/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/19/05	4/19/05
CLP VOL	Trichloroethene	Not detected	0.5	0.16	ug/L	4/19/05	4/19/05
CLP VOL	Vinyl Chloride	Not detected	0.5	0.23	ug/L	4/19/05	4/19/05
CLP VOL	Surrogate Recovery (BFB)	112	75-125		%	4/19/05	4/19/05
CLP VOL	Surrogate Recovery (DCA)	103	62-139		%	4/19/05	4/19/05
CLP VOL	Surrogate Recovery (TOL)	116	75-125		%	4/19/05	4/19/05

J = Estimated value, below quantitation limit.

Run #: 0419N07  
Instrument: Neo  
Sequence: N050418  
Dilution Factor: 1  
Initials: LF

Printed 4/25/05 5:26:26 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech, Inc.  
1340 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1290 000D WATS Bldg 89 Moffett Airfield

ARF: 47189

Sample ID: 86-WOPT-570

APPL ID: AX18052

Sample Collection Date: 4/19/05

OCG: SC42VT-050419AN-35397

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/19/05	4/19/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/19/05	4/19/05
CLP VOL	1,1,2-Trichloro-1,2,2-Trifluoroethane	0.23 J	0.5	0.21	ug/L	4/19/05	4/19/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/19/05	4/19/05
CLP VOL	1,1-Dichloroethane	21	0.5	0.19	ug/L	4/19/05	4/19/05
CLP VOL	1,1-Dichloroethene	50	0.5	0.30	ug/L	4/19/05	4/19/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/19/05	4/19/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/19/05	4/19/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/19/05	4/19/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/19/05	4/19/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/19/05	4/19/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/19/05	4/19/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/19/05	4/19/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/19/05	4/19/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/19/05	4/19/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/19/05	4/19/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/19/05	4/19/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/19/05	4/19/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/19/05	4/19/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/19/05	4/19/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	4/19/05	4/19/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/19/05	4/19/05
CLP VOL	cis-1,2-Dichloroethene	3500 E	0.5	0.16	ug/L	4/19/05	4/19/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/19/05	4/19/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/19/05	4/19/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/19/05	4/19/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/19/05	4/19/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/19/05	4/19/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/19/05	4/19/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/19/05	4/19/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/19/05	4/19/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0419N08  
Instrument: Neo  
Sequence: N050418  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:26:27 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1900.036D WATS Bldg 8a Moffett Airfield

Sample ID: 86-WOPT-570

Sample Collection Date: 4/19/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47139

APPL ID: AX18052

QCG: SC42VT-050419AN-65897

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	2900 E	0.5	0.15	ug/L	4/19/05	4/19/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/19/05	4/19/05
CLP VOL	trans-1,2-Dichloroethene	78	0.5	0.19	ug/L	4/19/05	4/19/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/19/05	4/19/05
CLP VOL	Trichloroethene	1600 E	0.5	0.16	ug/L	4/19/05	4/19/05
CLP VOL	Vinyl Chloride	6.4	0.5	0.23	ug/L	4/19/05	4/19/05
CLP VOL	Surrogate Recovery (BFB)	102	75-125		%	4/19/05	4/19/05
CLP VOL	Surrogate Recovery (DCA)	104	62-139		%	4/19/05	4/19/05
CLP VOL	Surrogate Recovery (TOL)	103	75-125		%	4/19/05	4/19/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0419N08  
Instrument: Neo  
Sequence: N050418  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:26:27 PM  
APPL: F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech F/W, Inc.  
1840 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-570

Sample Collection Date: 4/19/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47189

APPL ID: AX18052

QCG: SC42VD-050422BN-86861

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	11000	80	25.60	ug/L	4/23/05	4/23/05
CLP VOL	Tetrachloroethene	9200	80	24.00	ug/L	4/23/05	4/23/05
CLP VOL	Trichloroethene	2400	80	25.60	ug/L	4/23/05	4/23/05
CLP VOL	Surrogate Recovery (BFB)	109	75-125		%	4/23/05	4/23/05
CLP VOL	Surrogate Recovery (DCA)	90.2	62-139		%	4/23/05	4/23/05
CLP VOL	Surrogate Recovery (TOL)	116	75-125		%	4/23/05	4/23/05

Run #: 0422N34  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 160  
Initials: LF

Printed: 5/18/05 10:07:03 AM  
APPL-F1-SC-MCRos\MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc  
1540 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1993 086D WATS Bldg 85 Moffett Airfield

Sample ID: 86-WOPT-571

Sample Collection Date: 4/19/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47189

APPL ID: AX18053

QCG: SC42VT-050419AN-85897

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/19/05	4/19/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/19/05	4/19/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	5.1	0.5	0.21	ug/L	4/19/05	4/19/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/19/05	4/19/05
CLP VOL	1,1-Dichloroethane	13	0.5	0.19	ug/L	4/19/05	4/19/05
CLP VOL	1,1-Dichloroethene	31	0.5	0.30	ug/L	4/19/05	4/19/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/19/05	4/19/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/19/05	4/19/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/19/05	4/19/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/19/05	4/19/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/19/05	4/19/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/19/05	4/19/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/19/05	4/19/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/19/05	4/19/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/19/05	4/19/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/19/05	4/19/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/19/05	4/19/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/19/05	4/19/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/19/05	4/19/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/19/05	4/19/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	4/19/05	4/19/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/19/05	4/19/05
CLP VOL	cis-1,2-Dichloroethene	2100 E	0.5	0.16	ug/L	4/19/05	4/19/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/19/05	4/19/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/19/05	4/19/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/19/05	4/19/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/19/05	4/19/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/19/05	4/19/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/19/05	4/19/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/19/05	4/19/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/19/05	4/19/05

E = The reported value exceeds linear range.

Run #: 0419N09  
Instrument: Neo  
Sequence: N050418  
Dilution Factor: 1  
Initials: LF

Printed 4/25/05 5:26:27 PM  
APPL-F1-SC-MCRes:MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-571

Sample Collection Date: 4/19/05

ARF: 47189

APPL ID: AX18053

QCG: SC42VT-050419AN-85897

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	4100 E	0.5	0.15	ug/L	4/19/05	4/19/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/19/05	4/19/05
CLP VOL	trans-1,2-Dichloroethene	26	0.5	0.19	ug/L	4/19/05	4/19/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/19/05	4/19/05
CLP VOL	Trichloroethene	1500 E	0.5	0.16	ug/L	4/19/05	4/19/05
CLP VOL	Vinyl Chloride	3.7	0.5	0.23	ug/L	4/19/05	4/19/05
CLP VOL	Surrogate Recovery (BFB)	99.1	75-125		%	4/19/05	4/19/05
CLP VOL	Surrogate Recovery (DCA)	97.6	62-139		%	4/19/05	4/19/05
CLP VOL	Surrogate Recovery (TOL)	104	75-125		%	4/19/05	4/19/05

E = The reported value exceeds linear range.

**ADDED PAGE**

Run #: 0419N09  
Instrument: Neo  
Sequence: N050418  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:26:27 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Blenkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-571

Sample Collection Date: 4/19/05

APPL Inc  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47169

APPL ID: AX18053

QCG: SC42VD-050422BN-86961

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	3800	80	25.60	ug/L	4/23/05	4/23/05
CLP VOL	Tetrachloroethene	15000	80	24.00	ug/L	4/23/05	4/23/05
CLP VOL	Trichloroethene	1800	80	25.60	ug/L	4/23/05	4/23/05
CLP VOL	Surrogate Recovery (BFB)	101	75-125		%	4/23/05	4/23/05
CLP VOL	Surrogate Recovery (DCA)	85.6	62-139		%	4/23/05	4/23/05
CLP VOL	Surrogate Recovery (TOL)	107	75-125		%	4/23/05	4/23/05

Run #: 0422N35  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 160  
Initials: LF

Printed: 5/18/05 10:07:03 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



# CLP Volatiles Water

Tetra Tech FW, Inc.  
1840 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Blenkowski

Project: 1990.086D WATS Bldg 89 Moffett Airfield

ARF: 47189

Sample ID: 86-WOPT-572

APPL ID: AX18054

Sample Collection Date: 4/19/05

OCG: \$C42VT-050419AN-85897

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/20/05	4/20/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/20/05	4/20/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	5.1	0.5	0.21	ug/L	4/20/05	4/20/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/20/05	4/20/05
CLP VOL	1,1-Dichloroethane	14	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	1,1-Dichloroethene	36	0.5	0.30	ug/L	4/20/05	4/20/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/20/05	4/20/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/20/05	4/20/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/20/05	4/20/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/20/05	4/20/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/20/05	4/20/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/20/05	4/20/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/20/05	4/20/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/20/05	4/20/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/20/05	4/20/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/20/05	4/20/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/20/05	4/20/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/20/05	4/20/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/20/05	4/20/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/20/05	4/20/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	4/20/05	4/20/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/20/05	4/20/05
CLP VOL	cis-1,2-Dichloroethene	2300 E	0.5	0.16	ug/L	4/20/05	4/20/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/20/05	4/20/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/20/05	4/20/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/20/05	4/20/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/20/05	4/20/05

E = The reported value exceeds linear range.

Run #: 0419N10  
Instrument: Neo  
Sequence: N050418  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:26:27 PM  
APPL F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 68 Moffett Airfield

Sample ID: 86-WOPT-572

Sample Collection Date: 4/19/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47189

APPL ID: AX18054

CCG: SC42VT-050419AN-85897

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	4100 E	0.5	0.15	ug/L	4/20/05	4/20/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/20/05	4/20/05
CLP VOL	trans-1,2-Dichloroethene	28	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/20/05	4/20/05
CLP VOL	Trichloroethene	1700 E	0.5	0.16	ug/L	4/20/05	4/20/05
CLP VOL	Vinyl Chloride	4.1	0.5	0.23	ug/L	4/20/05	4/20/05
CLP VOL	Surrogate Recovery (BFB)	100	75-125		%	4/20/05	4/20/05
CLP VOL	Surrogate Recovery (DCA)	108	62-139		%	4/20/05	4/20/05
CLP VOL	Surrogate Recovery (TOL)	103	75-125		%	4/20/05	4/20/05

E = The reported value exceeds linear range.

Run #: 0419N10  
Instrument: Neo  
Sequence: N050418  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:26:27 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.066D WATS Bldg 88 Moffett Airfield

ARF: 47189

Sample ID: 86-WOPT-572

APPL ID: AX13054

Sample Collection Date: 4/19/05

QCG: SC42VD-050422BN-86961

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	3600	80	25.60	ug/L	4/23/05	4/23/05
CLP VOL	Tetrachloroethene	15000	80	24.00	ug/L	4/23/05	4/23/05
CLP VOL	Trichloroethene	1900	80	25.60	ug/L	4/23/05	4/23/05
CLP VOL	Surrogate Recovery (BFB)	106	75-125		%	4/23/05	4/23/05
CLP VOL	Surrogate Recovery (DCA)	87.0	62-139		%	4/23/05	4/23/05
CLP VOL	Surrogate Recovery (TOL)	108	75-125		%	4/23/05	4/23/05

Run #: 0422N36  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 160  
Initials: LF

Printed: 5/18/05 10:07:03 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1540 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990 006D WATS Bldg 88 Moffett Airfield

ARF: 47189

Sample ID: 86-WOPT-573

APPL ID: AX18055

Sample Collection Date: 4/19/05

QCG: SC42VT-050419AN-85897

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	1.1	0.5	0.14	ug/L	4/20/05	4/20/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/20/05	4/20/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	9.1	0.5	0.21	ug/L	4/20/05	4/20/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/20/05	4/20/05
CLP VOL	1,1-Dichloroethane	8.9	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	1,1-Dichloroethene	20	0.5	0.30	ug/L	4/20/05	4/20/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/20/05	4/20/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/20/05	4/20/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/20/05	4/20/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/20/05	4/20/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/20/05	4/20/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/20/05	4/20/05
CLP VOL	Benzene	0.23 J	0.5	0.16	ug/L	4/20/05	4/20/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/20/05	4/20/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/20/05	4/20/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/20/05	4/20/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/20/05	4/20/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/20/05	4/20/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/20/05	4/20/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/20/05	4/20/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	4/20/05	4/20/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/20/05	4/20/05
CLP VOL	cis-1,2-Dichloroethene	250 E	0.5	0.16	ug/L	4/20/05	4/20/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/20/05	4/20/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/20/05	4/20/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/20/05	4/20/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/20/05	4/20/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

Run #: 0419N11  
Instrument: Neo  
Sequence: N050418  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:26:27 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Blenkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-573

Sample Collection Date: 4/19/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47189

APPL ID: AX18055

QCG: SC42VT-050419AN-85897

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethane	1500 E	0.5	0.15	ug/L	4/20/05	4/20/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/20/05	4/20/05
CLP VOL	trans-1,2-Dichloroethene	1.4	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/20/05	4/20/05
CLP VOL	Trichloroethene	530 E	0.5	0.16	ug/L	4/20/05	4/20/05
CLP VOL	Vinyl Chloride	0.42 J	0.5	0.23	ug/L	4/20/05	4/20/05
CLP VOL	Surrogate Recovery (BFB)	106	75-125		%	4/20/05	4/20/05
CLP VOL	Surrogate Recovery (DCA)	109	62-139		%	4/20/05	4/20/05
CLP VOL	Surrogate Recovery (TOL)	108	75-125		%	4/20/05	4/20/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0419N11  
Instrument: Neo  
Sequence: N050418  
Dilution Factor: 1  
Initials: LF

Printed 4/25/05 5:26:27 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 68 Moffett Airfield

Sample ID: 86-WOPT-573

Sample Collection Date: 4/19/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47169

APPL ID: AX18055

QCG: SC42VD 050422BN-86961

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethane	200	40	12.80	ug/L	4/23/05	4/23/05
CLP VOL	Tetrachloroethene	2000	40	12.00	ug/L	4/23/05	4/23/05
CLP VOL	Trichloroethene	420	40	12.80	ug/L	4/23/05	4/23/05
CLP VOL	Surrogate Recovery (BFB)	104	75-125		%	4/23/05	4/23/05
CLP VOL	Surrogate Recovery (DCA)	91.1	62-139		%	4/23/05	4/23/05
CLP VOL	Surrogate Recovery (TCL)	107	75-125		%	4/23/05	4/23/05

Run #: 0422N37  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 80  
Initials: LF

Printed: 5/18/05 10:07:03 AM  
APPL F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.066D WATS Bldg 68 Moffett Airfield

ARF: 47189

Sample ID: 86-WOPT-574

APPL ID: AX18056

Sample Collection Date: 4/19/05

QCG: SC42VT-050419AN-85857

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/20/05	4/20/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/20/05	4/20/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	5.9	0.5	0.21	ug/L	4/20/05	4/20/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/20/05	4/20/05
CLP VOL	1,1-Dichloroethane	6.0	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	1,1-Dichloroethene	11	0.5	0.30	ug/L	4/20/05	4/20/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/20/05	4/20/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/20/05	4/20/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/20/05	4/20/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/20/05	4/20/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/20/05	4/20/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/20/05	4/20/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/20/05	4/20/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/20/05	4/20/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/20/05	4/20/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/20/05	4/20/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/20/05	4/20/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/20/05	4/20/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/20/05	4/20/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/20/05	4/20/05
CLP VOL	Chloroform	0.52	0.5	0.16	ug/L	4/20/05	4/20/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/20/05	4/20/05
CLP VOL	cis-1,2-Dichloroethene	130 E	0.5	0.16	ug/L	4/20/05	4/20/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/20/05	4/20/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/20/05	4/20/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/20/05	4/20/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/20/05	4/20/05

E = The reported value exceeds linear range.

Run #: 0419N12  
Instrument: Neo  
Sequence: N050418  
Dilution Factor: 1  
Initials: LF

Printed 4/25/05 5:26:27 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

ARF: 47189

Sample ID: 86-WOPT-574

APPL ID: AX18056

Sample Collection Date: 4/19/05

QCG: SC42VT-050419AN-55897

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	2200 E	0.5	0.15	ug/L	4/20/05	4/20/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/20/05	4/20/05
CLP VOL	trans-1,2-Dichloroethene	1.1	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/20/05	4/20/05
CLP VOL	Trichloroethene	460 E	0.5	0.16	ug/L	4/20/05	4/20/05
CLP VOL	Vinyl Chloride	0.51	0.5	0.23	ug/L	4/20/05	4/20/05
CLP VOL	Surrogate Recovery (BFB)	98.0	75-125		%	4/20/05	4/20/05
CLP VOL	Surrogate Recovery (DCA)	99.0	62-139		%	4/20/05	4/20/05
CLP VOL	Surrogate Recovery (TOL)	100	75-125		%	4/20/05	4/20/05

E = The reported value exceeds linear range.

Run #: 0419N12  
Instrument: Neo  
Sequence: N050418  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:26:27 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



## CLP Volatiles Water

Tetra Tech FW, Inc  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990 C88D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-574

Sample Collection Date: 4/19/05

APPL Inc  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47139

APPL ID: AX18056

QCG, SC42VD-G50422BN-86981

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	91	40	12.80	ug/L	4/23/05	4/23/05
CLP VOL	Tetrachloroethene	4500	40	12.00	ug/L	4/23/05	4/23/05
CLP VOL	Trichloroethene	340	40	12.80	ug/L	4/23/05	4/23/05
CLP VOL	Surrogate Recovery (BFB)	104	75-125		%	4/23/05	4/23/05
CLP VOL	Surrogate Recovery (DCA)	93.7	62-139		%	4/23/05	4/23/05
CLP VOL	Surrogate Recovery (TOL)	108	75-125		%	4/23/05	4/23/05

Run #: 0422N38  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 80  
Initials: LF

Printed: 5/18/05 10:07:03 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech F/W, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

ARF: 47189

Sample ID: 86-WOPT-575

APPL ID: AX18057

Sample Collection Date: 4/19/05

CCG: SC42VT-050419AN-85897

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/20/05	4/20/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/20/05	4/20/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	150 E	0.5	0.21	ug/L	4/20/05	4/20/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/20/05	4/20/05
CLP VOL	1,1-Dichloroethane	0.29 J	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	1,1-Dichloroethene	4.0	0.5	0.30	ug/L	4/20/05	4/20/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/20/05	4/20/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/20/05	4/20/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/20/05	4/20/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/20/05	4/20/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/20/05	4/20/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/20/05	4/20/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/20/05	4/20/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/20/05	4/20/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/20/05	4/20/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/20/05	4/20/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/20/05	4/20/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/20/05	4/20/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/20/05	4/20/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/20/05	4/20/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	4/20/05	4/20/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/20/05	4/20/05
CLP VOL	cis-1,2-Dichloroethene	9.5	0.5	0.16	ug/L	4/20/05	4/20/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/20/05	4/20/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/20/05	4/20/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	Methylene Chloride	0.42 J	0.5	0.35	ug/L	4/20/05	4/20/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/20/05	4/20/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0419N13  
Instrument: Neo  
Sequence: N050418  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:26:27 PM  
APPL F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-575

Sample Collection Date: 4/19/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47189

APPL ID: AX18057

QCG: SC42VT-050419AN-95897

Method	Analyte	Result	POL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	1700 E	0.5	0.15	ug/L	4/20/05	4/20/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/20/05	4/20/05
CLP VOL	trans-1,2-Dichloroethene	0.19 J	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/20/05	4/20/05
CLP VOL	Trichloroethene	1100 E	0.5	0.16	ug/L	4/20/05	4/20/05
CLP VOL	Vinyl Chloride	Not detected	0.5	0.23	ug/L	4/20/05	4/20/05
CLP VOL	Surrogate Recovery (BFB)	102	75-125		%	4/20/05	4/20/05
CLP VOL	Surrogate Recovery (DCA)	109	62-139		%	4/20/05	4/20/05
CLP VOL	Surrogate Recovery (TOL)	101	75-125		%	4/20/05	4/20/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0419N13  
Instrument: Neo  
Sequence: N050418  
Dilution Factor: 1  
Initials: LF

Printed 4/25/05 5:26:27 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Blenkowski

Project: 1950.086D WATS Bldg 58 Moffett Airfield

Sample ID: 56-WOPT-575

Sample Collection Date: 4/19/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47189

APPL ID: AX18057

QCG: SC42VD-050422CN-66962

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	69	40	16.80	ug/L	4/23/05	4/23/05
CLP VOL	Tetrachloroethene	2000	40	12.00	ug/L	4/23/05	4/23/05
CLP VOL	Trichloroethene	950	40	12.80	ug/L	4/23/05	4/23/05
CLP VOL	Surrogate Recovery (BFB)	113	75-125		%	4/23/05	4/23/05
CLP VOL	Surrogate Recovery (DCA)	116	62-139		%	4/23/05	4/23/05
CLP VOL	Surrogate Recovery (TOL)	104	75-125		%	4/23/05	4/23/05

Run #: 0422N47

Instrument: Neo

Sequence: N050421

Dilution Factor: 80

Initials: LF

Printed: 5/18/05 10:07:03 AM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1076

Sample Collection Date: 4/19/05

ARF: 47189

APPL ID: AX18058

QCG: \$C42VT-050419AN-85897

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/20/05	4/20/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/20/05	4/20/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	0.5	0.21	ug/L	4/20/05	4/20/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/20/05	4/20/05
CLP VOL	1,1-Dichloroethane	Not detected	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	1,1-Dichloroethene	Not detected	0.5	0.30	ug/L	4/20/05	4/20/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/20/05	4/20/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/20/05	4/20/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/20/05	4/20/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/20/05	4/20/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/20/05	4/20/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/20/05	4/20/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/20/05	4/20/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/20/05	4/20/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/20/05	4/20/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/20/05	4/20/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/20/05	4/20/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/20/05	4/20/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/20/05	4/20/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/20/05	4/20/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	4/20/05	4/20/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/20/05	4/20/05
CLP VOL	cis-1,2-Dichloroethene	0.72	0.5	0.16	ug/L	4/20/05	4/20/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/20/05	4/20/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/20/05	4/20/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/20/05	4/20/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/20/05	4/20/05

Run #: 0419N14  
Instrument: Neo  
Sequence: N050418  
Dilution Factor: 1  
Initials: LF

**ADDED PAGE**

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APPL-F1-SC-MCRes/MCPOL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deane Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 89 Moffett Airfield

Sample ID: 86-WOPT-1076

Sample Collection Date: 4/19/05

ARF: 47189

APPL ID: AX18058

QCG: SC42VT-050419AN-85897

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	8.5	0.5	0.15	ug/L	4/20/05	4/20/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/20/05	4/20/05
CLP VOL	trans-1,2-Dichloroethene	Not detected	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/20/05	4/20/05
CLP VOL	Trichloroethene	1.2	0.5	0.16	ug/L	4/20/05	4/20/05
CLP VOL	Vinyl Chloride	Not detected	0.5	0.23	ug/L	4/20/05	4/20/05
CLP VOL	Surrogate Recovery (BFB)	106	75-125		%	4/20/05	4/20/05
CLP VOL	Surrogate Recovery (DCA)	109	62-139		%	4/20/05	4/20/05
CLP VOL	Surrogate Recovery (TOL)	104	75-125		%	4/20/05	4/20/05

Run #: 0419N14  
Instrument: Neo  
Sequence: N050418  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:26:27 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowsk

Project: 1999.085D WATS Bldg 8S Moffett Airfield

Sample ID: 88-WOPT-1077

Sample Collection Date: 4/19/05

ARF: 47189

APPL ID: AX18059

QCG: SC42VT-050419AN-85067

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/20/05	4/20/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/20/05	4/20/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	1.8	0.5	0.21	ug/L	4/20/05	4/20/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/20/05	4/20/05
CLP VOL	1,1-Dichloroethane	72	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	1,1-Dichloroethane	67	0.5	0.30	ug/L	4/20/05	4/20/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/20/05	4/20/05
CLP VOL	1,2-Dichloropropane	0.63	0.5	0.17	ug/L	4/20/05	4/20/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/20/05	4/20/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/20/05	4/20/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/20/05	4/20/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/20/05	4/20/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/20/05	4/20/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/20/05	4/20/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/20/05	4/20/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/20/05	4/20/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/20/05	4/20/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/20/05	4/20/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/20/05	4/20/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/20/05	4/20/05
CLP VOL	Chloroform	0.42 J	0.5	0.16	ug/L	4/20/05	4/20/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/20/05	4/20/05
CLP VOL	cis-1,2-Dichloroethene	1000 E	0.5	0.16	ug/L	4/20/05	4/20/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/20/05	4/20/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/20/05	4/20/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/20/05	4/20/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/20/05	4/20/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0419N15  
Instrument: Neo  
Sequence: N050418  
Dilution Factor: 1  
Initials: LF

Printed 4/25/05 5:26:27 PM  
APPL F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1640 E. Deere Avenue, Suite 20  
Santa Ana CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bidg 88 Moffett Airfield

Sample ID: 86-WOPT-1077

Sample Collection Date: 4/19/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47189

APPL ID: AX16059

QCG: SC42VT-050419AN-85867

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	16	0.5	0.15	ug/L	4/20/05	4/20/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/20/05	4/20/05
CLP VOL	trans-1,2-Dichloroethene	4.2	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/20/05	4/20/05
CLP VOL	Trichloroethene	260 E	0.5	0.16	ug/L	4/20/05	4/20/05
CLP VOL	Vinyl Chloride	3.8	0.5	0.23	ug/L	4/20/05	4/20/05
CLP VOL	Surrogate Recovery (BFB)	103	75-125		%	4/20/05	4/20/05
CLP VOL	Surrogate Recovery (DCA)	109	62-139		%	4/20/05	4/20/05
CLP VOL	Surrogate Recovery (TOL)	103	75-125		%	4/20/05	4/20/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0419N15  
Instrument: Neo  
Sequence: N050418  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:26:27 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1S90.0860 WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1077

Sample Collection Date: 4/19/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47189

APPL ID: AX18059

OCG: SC42VD-050422CN-86962

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	1000	40	12.80	ug/L	4/23/05	4/23/05
CLP VCL	Trichloroethene	200	40	12.90	ug/L	4/23/05	4/23/05
CLP VOL	Surrogate Recovery (BFB)	106	75-125		%	4/23/05	4/23/05
CLP VOL	Surrogate Recovery (DCA)	116	62-139		%	4/23/05	4/23/05
CLP VCL	Surrogate Recovery (TOL)	108	75-125		%	4/23/05	4/23/05

Run #: 0422N48  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 80  
Initials: LF

Printed 5/18/05 10:07:03 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47189

Sample ID: 86-WOPT-1078

APPL ID: AX18060

Sample Collection Date: 4/19/05

GCG: SC42VT-050419AN-85897

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/20/05	4/20/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/20/05	4/20/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	0.5	0.21	ug/L	4/20/05	4/20/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/20/05	4/20/05
CLP VOL	1,1-Dichloroethane	10	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	1,1-Dichloroethene	24	0.5	0.30	ug/L	4/20/05	4/20/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/20/05	4/20/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/20/05	4/20/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/20/05	4/20/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/20/05	4/20/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/20/05	4/20/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/20/05	4/20/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/20/05	4/20/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/20/05	4/20/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/20/05	4/20/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/20/05	4/20/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/20/05	4/20/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/20/05	4/20/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/20/05	4/20/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/20/05	4/20/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	4/20/05	4/20/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/20/05	4/20/05
CLP VOL	cis-1,2-Dichloroethene	1700 E	0.5	0.16	ug/L	4/20/05	4/20/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/20/05	4/20/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/20/05	4/20/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/20/05	4/20/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/20/05	4/20/05

E = The reported value exceeds linear range.

Run #: 0419N16  
Instrument: Neo  
Sequence: N050418  
Dilution Factor: 1  
Initials: LF

Printed 4/25/05 5:26 27 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 85-WOPT-1073

Sample Collection Date: 4/19/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47189

APPL ID: AX13060

QCG: SC42VT-050419AN-85897

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	3.6	0.5	0.15	ug/L	4/20/05	4/20/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/20/05	4/20/05
CLP VOL	trans-1,2-Dichloroethene	12	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/20/05	4/20/05
CLP VOL	Trichloroethene	8.6	0.5	0.16	ug/L	4/20/05	4/20/05
CLP VOL	Vinyl Chloride	1.0	0.5	0.23	ug/L	4/20/05	4/20/05
CLP VOL	Surrogate Recovery (BFB)	112	75-125		%	4/20/05	4/20/05
CLP VOL	Surrogate Recovery (DCA)	110	62-139		%	4/20/05	4/20/05
CLP VOL	Surrogate Recovery (TOL)	113	75-125		%	4/20/05	4/20/05

E = The reported value exceeds linear range.

Run #: 0419N16  
Instrument: Neo  
Sequence: N050418  
Dilution Factor: 1  
Initials: LF

Printed 4/25/05 5:26:27 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Binkowski

Project: 1990.086D WATS Bldg 88 Moffatt Airfield

Sample ID: 86-WOPT-1078

Sample Collection Date: 4/19/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47189

APPL ID: AX18060

OCG: \$C42VD-050422CN-86962

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	3390	40	12.80	ug/L	4/24/05	4/24/05
CLP VOL	Surrogate Recovery (BFB)	115	75-125		%	4/24/05	4/24/05
CLP VOL	Surrogate Recovery (DCA)	112	62-139		%	4/24/05	4/24/05
CLP VOL	Surrogate Recovery (TOL)	114	75-125		%	4/24/05	4/24/05

Run #: 0422N49  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 80  
Initials: LF

Printed: 5/18/05 10:07:03 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Blenkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1079

Sample Collection Date: 4/19/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47189

APPL ID: AX18061

QCG: SC42VT-050419AN-85897

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	1.8	0.5	0.14	ug/L	4/20/05	4/20/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/20/05	4/20/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	41	0.5	0.21	ug/L	4/20/05	4/20/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/20/05	4/20/05
CLP VOL	1,1-Dichloroethane	15	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	1,1-Dichloroethene	37	0.5	0.30	ug/L	4/20/05	4/20/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/20/05	4/20/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/20/05	4/20/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/20/05	4/20/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/20/05	4/20/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/20/05	4/20/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/20/05	4/20/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/20/05	4/20/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/20/05	4/20/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/20/05	4/20/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/20/05	4/20/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/20/05	4/20/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/20/05	4/20/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/20/05	4/20/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/20/05	4/20/05
CLP VOL	Chloroform	0.48 J	0.5	0.16	ug/L	4/20/05	4/20/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/20/05	4/20/05
CLP VOL	cis-1,2-Dichloroethene	410 E	0.5	0.16	ug/L	4/20/05	4/20/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/20/05	4/20/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/20/05	4/20/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/20/05	4/20/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/20/05	4/20/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

Run #: 0419N17  
Instrument: Neo  
Sequence: N050418  
Dilution Factor: 1  
Initials: LF

Printed 4/25/05 5:26:27 PM  
APPL-F1-SC-MCRos/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.08eD WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1079

Sample Collection Date: 4/19/05

APPL Inc  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47189

APFL ID: AX18061

QCC: SC42VT-050419AN-85897

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	10	0.5	0.15	ug/L	4/20/05	4/20/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/20/05	4/20/05
CLP VOL	trans-1,2-Dichloroethene	2.2	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/20/05	4/20/05
CLP VOL	Trichloroethene	1400 E	0.5	0.16	ug/L	4/20/05	4/20/05
CLP VOL	Vinyl Chloride	1.1	0.5	0.23	ug/L	4/20/05	4/20/05
CLP VOL	Surrogate Recovery (BFB)	107	75-125		%	4/20/05	4/20/05
CLP VOL	Surrogate Recovery (DCA)	114	62-139		%	4/20/05	4/20/05
CLP VOL	Surrogate Recovery (TOL)	104	75-125		%	4/20/05	4/20/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0419N17  
Instrument: Neo  
Sequence: N050418  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:26:27 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1340 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D V/ATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1079

Sample Collection Date: 4/19/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47189

APPL ID: AX18061

QCG: SC42VD-050422CN-86062

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	250	40	12.80	ug/L	4/24/05	4/24/05
CLP VOL	Trichloroethene	1100	40	12.80	ug/L	4/24/05	4/24/05
CLP VOL	Surrogate Recovery (BFB)	107	75-125		%	4/24/05	4/24/05
CLP VOL	Surrogate Recovery (DCA)	111	62-139		%	4/24/05	4/24/05
CLP VOL	Surrogate Recovery (TCL)	107	75-125		%	4/24/05	4/24/05

Run #: 0422N50  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 80  
Initials: LF

Printed: 5/18/05 10:07:03 AM  
APPL-F1-SC-MCRes\MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech EW, Inc.  
1940 E. Deane Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1080

Sample Collection Date: 4/19/05

APPL Inc.  
1203 West Swift Avenue  
Fresno, CA 93722

ARF: 47189

APPL ID: AX18062

QCG: SC42VT-050419AN-85897

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	1.6	0.5	0.14	ug/L	4/20/05	4/20/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/20/05	4/20/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	30	0.5	0.21	ug/L	4/20/05	4/20/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/20/05	4/20/05
CLP VOL	1,1-Dichloroethane	13	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	1,1-Dichloroethane	29	0.5	0.30	ug/L	4/20/05	4/20/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/20/05	4/20/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/20/05	4/20/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/20/05	4/20/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/20/05	4/20/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/20/05	4/20/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/20/05	4/20/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/20/05	4/20/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/20/05	4/20/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/20/05	4/20/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/20/05	4/20/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/20/05	4/20/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/20/05	4/20/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/20/05	4/20/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/20/05	4/20/05
CLP VOL	Chloroform	0.39 J	0.5	0.16	ug/L	4/20/05	4/20/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/20/05	4/20/05
CLP VOL	cis-1,2-Dichloroethene	360 E	0.5	0.16	ug/L	4/20/05	4/20/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/20/05	4/20/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/20/05	4/20/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/20/05	4/20/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/20/05	4/20/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0419N18  
Instrument: Neo  
Sequence: N050418  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:26:27 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



## CLP Volatiles Water

Tetra Tech FW, Inc.  
1340 E. Dsere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990 085D WATS Bldg 88 Moffett Airfield

Sample ID: 06-WOPT-1020

Sample Collection Date: 4/19/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47189

APPL ID: AX18062

QCG: SC42VT-050419AN-85897

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	9.2	0.5	0.15	ug/L	4/20/05	4/20/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/20/05	4/20/05
CLP VOL	trans-1,2-Dichloroethene	1.7	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/20/05	4/20/05
CLP VOL	Trichloroethene	1200 E	0.5	0.16	ug/L	4/20/05	4/20/05
CLP VOL	Vinyl Chloride	0.84	0.5	0.23	ug/L	4/20/05	4/20/05
CLP VOL	Surrogate Recovery (BFB)	114	75-125		%	4/20/05	4/20/05
CLP VOL	Surrogate Recovery (DCA)	106	62-139		%	4/20/05	4/20/05
CLP VOL	Surrogate Recovery (TOL)	112	75-125		%	4/20/05	4/20/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0419N18  
Instrument: Neo  
Sequence: N050418  
Dilution Factor: 1  
Initials: LF

Printed 4/25/05 5:26:27 PM  
APPL-F1-SC-MCResMCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D IVATS Bldg 88 Moffett Airfield

Sample ID: 85-WOPT-1080

Sample Collection Date: 4/19/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47189

APPL ID: AX18062

CCG: SC42VD-050422CN-86962

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	260	40	12.80	ug/L	4/24/05	4/24/05
CLP VOL	Trichloroethene	1400	40	12.80	ug/L	4/24/05	4/24/05
CLP VOL	Surrogate Recovery (BFB)	111	75-125		%	4/24/05	4/24/05
CLP VOL	Surrogate Recovery (DCA)	109	62-139		%	4/24/05	4/24/05
CLP VOL	Surrogate Recovery (TOL)	116	75-125		%	4/24/05	4/24/05

Run #: 0422N51  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 80  
Initials: LF

Printed: 5/18/05 10:07:03 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowsky

Project: 1990.086D WATS Bldg 38 Moffett Airfield

Sample ID: 86-WOPT-1081

Sample Collection Date: 4/19/05

ARF: 47189

APPL ID: AX18063

QCG: SC42VT-050420AC-65896

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/20/05	4/20/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/20/05	4/20/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	20	0.5	0.21	ug/L	4/20/05	4/20/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/20/05	4/20/05
CLP VOL	1,1-Dichloroethane	6.6	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	1,1-Dichloroethene	13	0.5	0.30	ug/L	4/20/05	4/20/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/20/05	4/20/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/20/05	4/20/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/20/05	4/20/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/20/05	4/20/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/20/05	4/20/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/20/05	4/20/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/20/05	4/20/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/20/05	4/20/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/20/05	4/20/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/20/05	4/20/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/20/05	4/20/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/20/05	4/20/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/20/05	4/20/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/20/05	4/20/05
CLP VOL	Chloroform	0.26 J	0.5	0.16	ug/L	4/20/05	4/20/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/20/05	4/20/05
CLP VOL	cis-1,2-Dichloroethene	220 E	0.5	0.16	ug/L	4/20/05	4/20/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/20/05	4/20/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/20/05	4/20/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/20/05	4/20/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/20/05	4/20/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0420N08  
Instrument: Neo  
Sequence: N050418  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:26:37 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech F.W., Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

Sample ID: 88-WOPT-1081

Sample Collection Date: 4/19/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47189

APPL ID: AX18063

QCG: SC42VT-050420AN-85896

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	4.7	0.5	0.15	ug/L	4/20/05	4/20/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/20/05	4/20/05
CLP VOL	trans-1,2-Dichloroethene	1.0	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/20/05	4/20/05
CLP VOL	Trichloroethene	940 E	0.5	0.16	ug/L	4/20/05	4/20/05
CLP VOL	Vinyl Chloride	0.29 J	0.5	0.23	ug/L	4/20/05	4/20/05
CLP VOL	Surrogate Recovery (BFB)	104	75-125		%	4/20/05	4/20/05
CLP VOL	Surrogate Recovery (DCA)	102	62-139		%	4/20/05	4/20/05
CLP VOL	Surrogate Recovery (TOL)	108	75-125		%	4/20/05	4/20/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0420N08  
Instrument: Neo  
Sequence: N050418  
Dilution Factor: 1  
Initials: LF

Printed 4/25/05 5:26:27 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 08 Moffett Airfield

Sample ID: 86-WOPT-1031

Sample Collection Date: 4/19/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47169

APPL ID: AX18063

QCG: SC42VD-050422CN-86962

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	150	40	12.80	ug/L	4/24/05	4/24/05
CLP VOL	Trichloroethene	760	40	12.80	ug/L	4/24/05	4/24/05
CLP VOL	Surrogate Recovery (BFB)	109	75-125		%	4/24/05	4/24/05
CLP VOL	Surrogate Recovery (DCA)	110	62-139		%	4/24/05	4/24/05
CLP VOL	Surrogate Recovery (TOL)	113	75-125		%	4/24/05	4/24/05

Run #: 0422N52

Instrument: Neo

Sequence: N050421

Dilution Factor: 80

Initials: LF

Printed: 5/18/05 10:07:03 AM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1840 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.085D WATS Bldg 88 Moffett Airfield

ARF: 47189

Sample ID: 86-WOPT-1082

APPL ID: AX18064

Sample Collection Date: 4/19/05

OCG: SC42VT-050420AN-85896

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	0.65	0.5	0.14	ug/L	4/20/05	4/20/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/20/05	4/20/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	150 E	0.5	0.21	ug/L	4/20/05	4/20/05
CLP VOL	1,1,2-Trichloroethane	0.82	0.5	0.2	ug/L	4/20/05	4/20/05
CLP VOL	1,1-Dichloroethane	17	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	1,1-Dichloroethene	65	0.5	0.30	ug/L	4/20/05	4/20/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/20/05	4/20/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/20/05	4/20/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/20/05	4/20/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/20/05	4/20/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/20/05	4/20/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/20/05	4/20/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/20/05	4/20/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/20/05	4/20/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/20/05	4/20/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/20/05	4/20/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/20/05	4/20/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/20/05	4/20/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/20/05	4/20/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/20/05	4/20/05
CLP VOL	Chloroform	0.83	0.5	0.16	ug/L	4/20/05	4/20/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/20/05	4/20/05
CLP VOL	cis-1,2-Dichloroethene	240 E	0.5	0.16	ug/L	4/20/05	4/20/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/20/05	4/20/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/20/05	4/20/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/20/05	4/20/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/20/05	4/20/05

E = The reported value exceeds linear range.

Run #: 0420N06  
Instrument: Neo  
Sequence: N050418  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:26:27 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1340 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

ARF: 47189

Sample ID: 86-WOPT-1082

APPL ID: AX18064

Sample Collection Date: 4/19/05

QCG: SC42VT-050420AN-65896

Method	Analyte	Result	POL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	39	0.5	0.15	ug/L	4/20/05	4/20/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/20/05	4/20/05
CLP VOL	trans-1,2-Dichloroethene	1.8	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/20/05	4/20/05
CLP VOL	Trichloroethene	2200 E	0.5	0.16	ug/L	4/20/05	4/20/05
CLP VOL	Vinyl Chloride	0.67	0.5	0.23	ug/L	4/20/05	4/20/05
CLP VOL	Surrogate Recovery (BFB)	104	75-125		%	4/20/05	4/20/05
CLP VOL	Surrogate Recovery (DCA)	102	62-139		%	4/20/05	4/20/05
CLP VOL	Surrogate Recovery (TOL)	109	75-125		%	4/20/05	4/20/05

E = The reported value exceeds linear range.

Run #: 0420N06  
Instrument: Neo  
Sequence: N050418  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:26:27 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech F/W, Inc.  
1940 E. Doera Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Blenkowski  
Project: 1990 08SD WATS Bldg 88 Moffett Airfield

Sample ID: 85-WOPT-1082

Sample Collection Date: 4/19/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47189

APPL ID: AX18064

QCG: SC42VD-050422CN-86962

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	83	40	16.80	ug/L	4/24/05	4/24/05
CLP VOL	cis-1,2-Dichloroethene	190	40	12.80	ug/L	4/24/05	4/24/05
CLP VOL	Trichloroethene	5000	40	12.80	ug/L	4/24/05	4/24/05
CLP VOL	Surrogate Recovery (BFB)	109	75-125		%	4/24/05	4/24/05
CLP VOL	Surrogate Recovery (DCA)	111	62-139		%	4/24/05	4/24/05
CLP VOL	Surrogate Recovery (TOL)	112	75-125		%	4/24/05	4/24/05

Run #: 0422N53  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 80  
Initials: LF

Printed: 5/18/05 10:07:03 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92706

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1083

Sample Collection Date: 4/19/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47189

APPL ID: AX18065

QCG: \$C42VT-050420AN-85896

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	0.37 J	0.5	0.14	ug/L	4/20/05	4/20/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/20/05	4/20/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	440 E	0.5	0.21	ug/L	4/20/05	4/20/05
CLP VOL	1,1,2-Trichloroethane	1.7	0.5	0.2	ug/L	4/20/05	4/20/05
CLP VOL	1,1-Dichloroethane	22	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	1,1-Dichloroethene	120 E	0.5	0.30	ug/L	4/20/05	4/20/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/20/05	4/20/05
CLP VOL	1,2-Dichloropropane	1.9	0.5	0.17	ug/L	4/20/05	4/20/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/20/05	4/20/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/20/05	4/20/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/20/05	4/20/05
CLP VOL	Acetone	18	5	0.95	ug/L	4/20/05	4/20/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/20/05	4/20/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/20/05	4/20/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/20/05	4/20/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/20/05	4/20/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/20/05	4/20/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/20/05	4/20/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/20/05	4/20/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/20/05	4/20/05
CLP VOL	Chloroform	1.4	0.5	0.16	ug/L	4/20/05	4/20/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/20/05	4/20/05
CLP VOL	cis-1,2-Dichloroethene	220 E	0.5	0.16	ug/L	4/20/05	4/20/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/20/05	4/20/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/20/05	4/20/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/20/05	4/20/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/20/05	4/20/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0420N07  
Instrument: Neo  
Sequence: N050418  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:26:27 PM  
APPL-F1-SC-MCRs/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Daere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990 066D WATS Bldg 88 Moffett Airfield

ARF: 47189

Sample ID: 86-WOPT-1083

APPL ID: AX18065

Sample Collection Date: 4/19/05

QCG: SC42VT-050420AN-85886

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	62	0.5	0.15	ug/L	4/20/05	4/20/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/20/05	4/20/05
CLP VOL	trans-1,2-Dichloroethene	2.7	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/20/05	4/20/05
CLP VOL	Trichloroethene	3000 E	0.5	0.16	ug/L	4/20/05	4/20/05
CLP VOL	Vinyl Chloride	0.53	0.5	0.23	ug/L	4/20/05	4/20/05
CLP VOL	Surrogate Recovery (BFB)	106	75-125		%	4/20/05	4/20/05
CLP VOL	Surrogate Recovery (DCA)	108	62-139		%	4/20/05	4/20/05
CLP VOL	Surrogate Recovery (TOL)	112	75-125		%	4/20/05	4/20/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

Run #: 0420N07

Instrument: Neo

Sequence: N050418

Dilution Factor: 1

Initials: LF

Printed: 4/25/05 5:26:27 PM

APPL-F1-SC-MCRes\MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 83 Moffett Airfield

Sample ID: 86-WCPT-1083

Sample Collection Date: 4/19/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47189

APPL ID: AX18065

QCG: SC42VD-050422CN-86962

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	250	40	16.80	ug/L	4/24/05	4/24/05
CLP VOL	1,1-Dichloroethene	98	40	24.00	ug/L	4/24/05	4/24/05
CLP VOL	cis-1,2-Dichloroethene	170	40	12.80	ug/L	4/24/05	4/24/05
CLP VOL	Trichloroethene	10000	40	12.80	ug/L	4/24/05	4/24/05
CLP VOL	Surrogate Recovery (BFB)	118	75-125		%	4/24/05	4/24/05
CLP VOL	Surrogate Recovery (DCA)	107	62-139		%	4/24/05	4/24/05
CLP VOL	Surrogate Recovery (TOL)	115	75-125		%	4/24/05	4/24/05

Run #: 0422N54  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 80  
Initials: LF

Printed: 5/18/05 10:07:03 AM  
APPL-F1-SC MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project 1990 C66D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1084

Sample Collection Date: 4/19/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47189

APPL ID: AX18066

QCG: S86TTS-050419AC-85899

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 21.1 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	1.0	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.6	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.61	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,1-Dichloroethane	6.2	6	1.4	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,1-Dichloroethene	5.0 J	6	1.0	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.91	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.79	ug/Kg	4/19/05	4/19/05
EPA 8260B	2-Butanone	Not detected	63	0.90	ug/Kg	4/19/05	4/19/05
EPA 8260B	2-Hexanone	Not detected	63	0.20	ug/Kg	4/19/05	4/19/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	63	1.2	ug/Kg	4/19/05	4/19/05
EPA 8260B	Acetone	Not detected	130	3.5	ug/Kg	4/19/05	4/19/05
EPA 8260B	Benzene	Not detected	6	0.80	ug/Kg	4/19/05	4/19/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.87	ug/Kg	4/19/05	4/19/05
EPA 8260B	Bromoform	Not detected	6	1.0	ug/Kg	4/19/05	4/19/05
EPA 8260B	Bromomethane	Not detected	13	2.0	ug/Kg	4/19/05	4/19/05
EPA 8260B	Carbon disulfide	Not detected	6	1.4	ug/Kg	4/19/05	4/19/05
EPA 8260B	Carbon tetrachloride	Not detected	6	1.0	ug/Kg	4/19/05	4/19/05
EPA 8260B	Chlorobenzene	Not detected	6	0.62	ug/Kg	4/19/05	4/19/05
EPA 8260B	Chloroethane	Not detected	6	2.0	ug/Kg	4/19/05	4/19/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	4/19/05	4/19/05
EPA 8260B	Chloromethane	Not detected	6	2.3	ug/Kg	4/19/05	4/19/05
EPA 8260B	cis-1,2-Dichloroethene	81	6	1.4	ug/Kg	4/19/05	4/19/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.60	ug/Kg	4/19/05	4/19/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.1	ug/Kg	4/19/05	4/19/05
EPA 8260B	Ethylbenzene	Not detected	6	0.81	ug/Kg	4/19/05	4/19/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/19/05	4/19/05
EPA 8260B	Methylene chloride	Not detected	63	5.8	ug/Kg	4/19/05	4/19/05
EPA 8260B	Styrene	Not detected	6	0.87	ug/Kg	4/19/05	4/19/05
EPA 8260B	Tetrachloroethene	3.3 J	6	0.68	ug/Kg	4/19/05	4/19/05
EPA 8260B	Toluene	Not detected	6	0.82	ug/Kg	4/19/05	4/19/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.7	ug/Kg	4/19/05	4/19/05

J = Estimated value, below quantitation limit.

Run #: 0419C11  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:26:27 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1840 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

Sample ID: **86-WCPT-1084**

Sample Collection Date: 4/19/05

ARF: 47189

APPL ID: **AX18056**

OCG: S86TTS-050419AC-85899

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.54	ug/Kg	4/19/05	4/19/05
EPA 8260B	Trichloroethene	49	6	0.30	ug/Kg	4/19/05	4/19/05
EPA 8260B	Vinyl Acetate	Not detected	63	1.3	ug/Kg	4/19/05	4/19/05
EPA 8260B	Vinyl chloride	Not detected	6	2.1	ug/Kg	4/19/05	4/19/05
EPA 8260B	Xylenes	Not detected	19	0.88	ug/Kg	4/19/05	4/19/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	113	52-149		%	4/19/05	4/19/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	103	65-135		%	4/19/05	4/19/05
EPA 8260B	Surrogate recovery: Toluene-d8	94.7	65-135		%	4/19/05	4/19/05

J = Estimated value, below quantitation limit.

Run #: 0419C11  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:26:27 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bierikowski  
Project: 1990 083D WATS Bldg 88 McFet: Airfield

ARF: 47189

Sample ID: 86-WOPT-1085

APPL ID: AX18067

Sample Collection Date: 4/19/05

QCQ: S86TTS-05C415AC-85899

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 22.3 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	1.0	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.6	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.62	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,1-Dichloroethane	1.9 J	6	1.4	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,1-Dichloroethene	3.5 J	6	1.0	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.93	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.80	ug/Kg	4/19/05	4/19/05
EPA 8260B	2-Butanone	Not detected	64	0.91	ug/Kg	4/19/05	4/19/05
EPA 8260B	2-Hexanone	Not detected	64	0.21	ug/Kg	4/19/05	4/19/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	64	1.2	ug/Kg	4/19/05	4/19/05
EPA 8260B	Acetone	Not detected	130	3.6	ug/Kg	4/19/05	4/19/05
EPA 8260B	Benzene	Not detected	6	0.81	ug/Kg	4/19/05	4/19/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.89	ug/Kg	4/19/05	4/19/05
EPA 8260B	Bromoform	Not detected	6	1.0	ug/Kg	4/19/05	4/19/05
EPA 8260B	Bromomethane	Not detected	13	2.1	ug/Kg	4/19/05	4/19/05
EPA 8260B	Carbon disulfide	Not detected	6	1.4	ug/Kg	4/19/05	4/19/05
EPA 8260B	Carbon tetrachloride	Not detected	6	1.0	ug/Kg	4/19/05	4/19/05
EPA 8260B	Chlorobenzene	Not detected	6	0.63	ug/Kg	4/19/05	4/19/05
EPA 8260B	Chloroethane	Not detected	6	2.0	ug/Kg	4/19/05	4/19/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	4/19/05	4/19/05
EPA 8260B	Chloromethane	Not detected	6	2.3	ug/Kg	4/19/05	4/19/05
EPA 8260B	cis-1,2-Dichloroethene	67	6	1.4	ug/Kg	4/19/05	4/19/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.60	ug/Kg	4/19/05	4/19/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.1	ug/Kg	4/19/05	4/19/05
EPA 8260B	Ethylbenzene	Not detected	6	0.82	ug/Kg	4/19/05	4/19/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/19/05	4/19/05
EPA 8260B	Methylene chloride	Not detected	64	5.9	ug/Kg	4/19/05	4/19/05
EPA 8260B	Styrene	Not detected	6	0.89	ug/Kg	4/19/05	4/19/05
EPA 8260B	Tetrachloroethene	3.8 J	6	0.69	ug/Kg	4/19/05	4/19/05
EPA 8260B	Toluene	Not detected	6	0.84	ug/Kg	4/19/05	4/19/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.7	ug/Kg	4/19/05	4/19/05

J = Estimated value, below quantitation limit.

Run #: 0419C12  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:26:28 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Blenkowski  
Project: 1990.036D WATS Bidg 88 Moffett Airfield

ARF: 47139

Sample ID: 86-WOPT-1085

APPL ID: AX18067

Sample Collection Date: 4/19/05

CCG: S88TTS-050413AC-85899

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.55	ug/Kg	4/19/05	4/19/05
EPA 8260B	Trichloroethene	220	6	0.91	ug/Kg	4/19/05	4/19/05
EPA 8260B	Vinyl Acetate	Not detected	64	1.3	ug/Kg	4/19/05	4/19/05
EPA 8260B	Vinyl chloride	Not detected	6	2.2	ug/Kg	4/19/05	4/19/05
EPA 8260B	Xylenes	Not detected	19	0.88	ug/Kg	4/19/05	4/19/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	115	52-149		%	4/19/05	4/19/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	102	65-135		%	4/19/05	4/19/05
EPA 8260B	Surrogate recovery: Toluene-d8	92.9	65-135		%	4/19/05	4/19/05

J = Estimated value, below quantitation limit.

Run #: 0419C12  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed 4/25/05 5:26:28 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 McFett Airfield

ARF: 47189

Sample ID: 86-WOPT-1086

APPL ID: AX18068

Sample Collection Date: 4/19/05

QCG: \$86TTS-050419AC-85999

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 25.6 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	7	1.1	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	7	1.7	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	7	0.65	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,1-Dichloroethane	Not detected	7	1.5	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,1-Dichloroethene	2.1 J	7	1.1	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,2-Dichloroethane	Not detected	7	0.97	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,2-Dichloropropane	Not detected	7	0.83	ug/Kg	4/19/05	4/19/05
EPA 8260B	2-Butanone	Not detected	67	0.95	ug/Kg	4/19/05	4/19/05
EPA 8260B	2-Hexanone	Not detected	67	0.22	ug/Kg	4/19/05	4/19/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	67	1.2	ug/Kg	4/19/05	4/19/05
EPA 8260B	Acetone	Not detected	130	3.8	ug/Kg	4/19/05	4/19/05
EPA 8260B	Benzene	Not detected	7	0.85	ug/Kg	4/19/05	4/19/05
EPA 8260B	Bromodichloromethane	Not detected	7	0.93	ug/Kg	4/19/05	4/19/05
EPA 8260B	Bromoform	Not detected	7	1.1	ug/Kg	4/19/05	4/19/05
EPA 8260B	Bromomethane	Not detected	13	2.1	ug/Kg	4/19/05	4/19/05
EPA 8260B	Carbon disulfide	Not detected	7	1.4	ug/Kg	4/19/05	4/19/05
EPA 8260B	Carbon tetrachloride	Not detected	7	1.1	ug/Kg	4/19/05	4/19/05
EPA 8260B	Chlorobenzene	Not detected	7	0.66	ug/Kg	4/19/05	4/19/05
EPA 8260B	Chloroethane	Not detected	7	2.1	ug/Kg	4/19/05	4/19/05
EPA 8260B	Chloroform	Not detected	7	1.9	ug/Kg	4/19/05	4/19/05
EPA 8260B	Chloromethane	Not detected	7	2.4	ug/Kg	4/19/05	4/19/05
EPA 8260B	cis-1,2-Dichloroethene	24	7	1.4	ug/Kg	4/19/05	4/19/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	7	0.53	ug/Kg	4/19/05	4/19/05
EPA 8260B	Dibromochloromethane	Not detected	7	1.1	ug/Kg	4/19/05	4/19/05
EPA 8260B	Ethylbenzene	Not detected	7	0.86	ug/Kg	4/19/05	4/19/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	7	1.2	ug/Kg	4/19/05	4/19/05
EPA 8260B	Methylene chloride	Not detected	67	6.2	ug/Kg	4/19/05	4/19/05
EPA 8260B	Styrene	Not detected	7	0.93	ug/Kg	4/19/05	4/19/05
EPA 8260B	Tetrachloroethene	0.89 J	7	0.73	ug/Kg	4/19/05	4/19/05
EPA 8260B	Toluene	Not detected	7	0.87	ug/Kg	4/19/05	4/19/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	7	1.8	ug/Kg	4/19/05	4/19/05

J = Estimated value, below quantitation limit.

Run #: 0419C13  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:26:28 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



**EPA 8260B**

Tetra Tech FW, Inc.  
1340 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 68 Moffett Airfield

Sample ID: 85-WOPT-1086

Sample Collection Date: 4/19/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47189

APPL ID: AX18068

QCG: S86TTS-050419AC-85899

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	7	0.58	ug/Kg	4/19/05	4/19/05
EPA 8260B	Trichloroethene	170	7	0.95	ug/Kg	4/19/05	4/19/05
EPA 8260B	Vinyl Acetate	Not detected	67	1.3	ug/Kg	4/19/05	4/19/05
EPA 8260B	Vinyl chloride	Not detected	7	2.3	ug/Kg	4/19/05	4/19/05
EPA 8260B	Xylenes	Not detected	20	0.91	ug/Kg	4/19/05	4/19/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	119	52-149		%	4/19/05	4/19/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	101	65-135		%	4/19/05	4/19/05
EPA 8260B	Surrogate recovery: Toluene-d8	95.0	65-135		%	4/19/05	4/19/05

J = Estimated value, below quantitation limit.

Run #: 0419C13  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:26:28 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc  
1940 E Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990 036D WATS Bldg 38 Moffett Airfield

Sample ID: 86-WCPT-1087

Sample Collection Date: 4/19/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47189

APPL ID: AX18069

QCG: S86TTS-050415AC-85899

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 23.0 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	7	1.0	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	7	1.6	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	7	0.62	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,1-Dichloroethane	2.8 J	7	1.5	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,1-Dichloroethane	8.7	7	1.0	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,2-Dichloroethane	Not detected	7	0.94	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,2-Dichloropropane	Not detected	7	0.81	ug/Kg	4/19/05	4/19/05
EPA 8260B	2-Butanone	Not detected	65	0.92	ug/Kg	4/19/05	4/19/05
EPA 8260B	2-Hexanone	Not detected	65	0.21	ug/Kg	4/19/05	4/19/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	65	1.2	ug/Kg	4/19/05	4/19/05
EPA 8260B	Acetone	Not detected	130	3.6	ug/Kg	4/19/05	4/19/05
EPA 8260B	Benzene	Not detected	7	0.82	ug/Kg	4/19/05	4/19/05
EPA 8260B	Bromodichloromethane	Not detected	7	0.90	ug/Kg	4/19/05	4/19/05
EPA 8260B	Bromoform	Not detected	7	1.0	ug/Kg	4/19/05	4/19/05
EPA 8260B	Bromomethane	Not detected	13	2.1	ug/Kg	4/19/05	4/19/05
EPA 8260B	Carbon disulfide	Not detected	7	1.4	ug/Kg	4/19/05	4/19/05
EPA 8260B	Carbon tetrachloride	Not detected	7	1.0	ug/Kg	4/19/05	4/19/05
EPA 8260B	Chlorobenzene	Not detected	7	0.64	ug/Kg	4/19/05	4/19/05
EPA 8260B	Chloroethane	Not detected	7	2.0	ug/Kg	4/19/05	4/19/05
EPA 8260B	Chloroform	Not detected	7	1.9	ug/Kg	4/19/05	4/19/05
EPA 8260B	Chloromethane	Not detected	7	2.4	ug/Kg	4/19/05	4/19/05
EPA 8260B	cis-1,2-Dichloroethene	42	7	1.4	ug/Kg	4/19/05	4/19/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	7	0.61	ug/Kg	4/19/05	4/19/05
EPA 8260B	Dibromochloromethane	Not detected	7	1.1	ug/Kg	4/19/05	4/19/05
EPA 8260B	Ethylbenzene	Not detected	7	0.83	ug/Kg	4/19/05	4/19/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	7	1.2	ug/Kg	4/19/05	4/19/05
EPA 8260B	Methylene chloride	Not detected	65	6.0	ug/Kg	4/19/05	4/19/05
EPA 8260B	Styrene	Not detected	7	0.90	ug/Kg	4/19/05	4/19/05
EPA 8260B	Tetrachloroethene	7.6	7	0.70	ug/Kg	4/19/05	4/19/05
EPA 8260B	Toluene	Not detected	7	0.84	ug/Kg	4/19/05	4/19/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	7	1.8	ug/Kg	4/19/05	4/19/05

J = Estimated value, below quantitation limit.

Run #: 0419C14  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed 4/25/05 5:28 PM  
APPL-F1-SC-MCResMCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Osere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Sienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: S6-WOPT-1067

Sample Collection Date: 4/19/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47189

APPL ID: AX18069

QCG: S86TTS-060419AC-85899

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	7	0.56	ug/Kg	4/19/05	4/19/05
EPA 8260B	Trichloroethene	890	7	0.92	ug/Kg	4/19/05	4/19/05
EPA 8260B	Vinyl Acetate	Not detected	5	1.3	ug/Kg	4/19/05	4/19/05
EPA 8260B	Vinyl chloride	Not detected	7	2.2	ug/Kg	4/19/05	4/19/05
EPA 8260B	Xylenes	Not detected	19	0.88	ug/Kg	4/19/05	4/19/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	116	52-149		%	4/19/05	4/19/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	92.6	65-135		%	4/19/05	4/19/05
EPA 8260B	Surrogate recovery: Toluene-d8	93.2	65-135		%	4/19/05	4/19/05

J = Estimated value, below quantitation limit.

Run #: 0419C14  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:26:28 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.036D WATS Bldg 88 Moffett Airfield

ARF: 47189

Sample ID: 86-WOPT-1088

APPL ID: AX18070

Sample Collection Date: 4/19/05

QCG: S66TTS-050419AC-65839

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 34.1 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	8	1.2	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	8	1.9	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	8	0.73	ug/Kg	4/19/05	4/19/05
EPA 8230B	1,1-Dichloroethane	Not detected	8	1.7	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,1-Dichloroethene	5.2 J	8	1.2	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,2-Dichloroethane	Not detected	8	1.1	ug/Kg	4/19/05	4/19/05
EPA 8260B	1,2-Dichloropropane	Not detected	8	0.94	ug/Kg	4/19/05	4/19/05
EPA 8260B	2-Butanone	Not detected	76	1.1	ug/Kg	4/19/05	4/19/05
EPA 8260B	2-Hexanone	Not detected	76	0.24	ug/Kg	4/19/05	4/19/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	76	1.4	ug/Kg	4/19/05	4/19/05
EPA 8260B	Acetone	Not detected	150	4.2	ug/Kg	4/19/05	4/19/05
EPA 8260B	Benzene	Not detected	8	0.96	ug/Kg	4/19/05	4/19/05
EPA 8260B	Bromodichloromethane	Not detected	8	1.0	ug/Kg	4/19/05	4/19/05
EPA 8260B	Bromoform	Not detected	8	1.2	ug/Kg	4/19/05	4/19/05
EPA 8260B	Bromomethane	Not detected	15	2.4	ug/Kg	4/19/05	4/19/05
EPA 8260B	Carbon disulfide	Not detected	8	1.6	ug/Kg	4/19/05	4/19/05
EPA 8260B	Carbon tetrachloride	Not detected	8	1.2	ug/Kg	4/19/05	4/19/05
EPA 8260B	Chlorobenzene	Not detected	8	0.74	ug/Kg	4/19/05	4/19/05
EPA 8260B	Chloroethane	Not detected	8	2.4	ug/Kg	4/19/05	4/19/05
EPA 8260B	Chloroform	Not detected	8	2.2	ug/Kg	4/19/05	4/19/05
EPA 8260B	Chloromethane	Not detected	8	2.8	ug/Kg	4/19/05	4/19/05
EPA 8260B	cis-1,2-Dichloroethene	15	8	1.6	ug/Kg	4/19/05	4/19/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	8	0.71	ug/Kg	4/19/05	4/19/05
EPA 8260B	Dibromochloromethane	Not detected	8	1.3	ug/Kg	4/19/05	4/19/05
EPA 8260B	Ethylbenzene	Not detected	8	0.97	ug/Kg	4/19/05	4/19/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	8	1.4	ug/Kg	4/19/05	4/19/05
EPA 8260B	Methylene chloride	Not detected	76	7.0	ug/Kg	4/19/05	4/19/05
EPA 8260B	Styrene	Not detected	8	1.0	ug/Kg	4/19/05	4/19/05
EPA 8260B	Tetrachloroethene	6.5 J	8	0.82	ug/Kg	4/19/05	4/19/05
EPA 8260B	Toluene	Not detected	8	0.99	ug/Kg	4/19/05	4/19/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	8	2.0	ug/Kg	4/19/05	4/19/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0419C15  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:26:28 PM  
APPL-F1-SC-MCRes-MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WCPT-1088

Sample Collection Date: 4/19/05

ARF: 47189

APPL ID: AX18070

QCG: \$86TTS-050419AC-85899

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	8	0.65	ug/Kg	4/19/05	4/19/05
EPA 8260B	Trichloroethene	1100 E	8	1.1	ug/Kg	4/19/05	4/19/05
EPA 8260B	Vinyl Acetate	Not detected	76	1.5	ug/Kg	4/19/05	4/19/05
EPA 8260B	Vinyl chloride	Not detected	8	2.5	ug/Kg	4/19/05	4/19/05
EPA 8260B	Xylenes	Not detected	23	1.0	ug/Kg	4/19/05	4/19/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	113	52-149		%	4/19/05	4/19/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	102	65-135		%	4/19/05	4/19/05
EPA 8260B	Surrogate recovery: Toluene-d8	99.2	65-135		%	4/19/05	4/19/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0419C15  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed 4/25/05 5:26:28 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.088D WATS Bldg 38 Moffett Airfield

Sample ID: 86-WOPT-1088

Sample Collection Date: 4/19/05

APPL Inc  
4208 West Swift Avenue  
Fresno, CA 93722

ARF: 47183

APPL ID: AX18070

QC: S86TTD-050424AM-86925

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 34.1 Percent Moisture.)							
EPA 8260B-	Trichloroethene	660	38	12	ug/Kg	4/25/05	4/25/05
EPA 8260B-	Surrogate recovery: 1,2-Dichloroethane	105	52-149		%	4/25/05	4/25/05
EPA 8260B-	Surrogate recovery: 4-Bromofluorobenz	112	65-135		%	4/25/05	4/25/05
EPA 8260B-	Surrogate recovery: Toluene-d8	118	65-135		%	4/25/05	4/25/05

Run #: 0424M12  
Instrument: Max  
Sequence: M050422  
Dilution Factor: 50  
Initials: LF

Printed: 5/18/05 11:36:11 AM  
APPL-F1-SC-MCRes\MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

ARF: 47169

Sample ID: 86-WOPT-10S9

APPL ID: AX18071

Sample Collection Date: 4/19/05

QCG: \$86TTS-050413AC-95639

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 21.5 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	1.0	ug/Kg	4/20/05	4/20/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.6	ug/Kg	4/20/05	4/20/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.61	ug/Kg	4/20/05	4/20/05
EPA 8260B	1,1-Dichloroethane	Not detected	6	1.4	ug/Kg	4/20/05	4/20/05
EPA 8260B	1,1-Dichloroethene	5.6 J	6	1.0	ug/Kg	4/20/05	4/20/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.92	ug/Kg	4/20/05	4/20/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.79	ug/Kg	4/20/05	4/20/05
EPA 8260B	2-Butanone	Not detected	64	0.90	ug/Kg	4/20/05	4/20/05
EPA 8260B	2-Hexanone	Not detected	64	0.20	ug/Kg	4/20/05	4/20/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	64	1.2	ug/Kg	4/20/05	4/20/05
EPA 8260B	Acetone	Not detected	130	3.6	ug/Kg	4/20/05	4/20/05
EPA 8260B	Benzene	Not detected	6	0.80	ug/Kg	4/20/05	4/20/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.88	ug/Kg	4/20/05	4/20/05
EPA 8260B	Bromoform	Not detected	6	1.0	ug/Kg	4/20/05	4/20/05
EPA 8260B	Bromomethane	Not detected	13	2.0	ug/Kg	4/20/05	4/20/05
EPA 8260B	Carbon disulfide	Not detected	6	1.4	ug/Kg	4/20/05	4/20/05
EPA 8260B	Carbon tetrachloride	Not detected	6	1.0	ug/Kg	4/20/05	4/20/05
EPA 8260B	Chlorobenzene	Not detected	6	0.62	ug/Kg	4/20/05	4/20/05
EPA 8260B	Chloroethane	Not detected	6	2.0	ug/Kg	4/20/05	4/20/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	4/20/05	4/20/05
EPA 8260B	Chloromethane	Not detected	6	2.3	ug/Kg	4/20/05	4/20/05
EPA 8260B	cis-1,2-Dichloroethene	15	6	1.4	ug/Kg	4/20/05	4/20/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.60	ug/Kg	4/20/05	4/20/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.1	ug/Kg	4/20/05	4/20/05
EPA 8260B	Ethylbenzene	Not detected	6	0.82	ug/Kg	4/20/05	4/20/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/20/05	4/20/05
EPA 8260B	Methylene chloride	Not detected	64	5.8	ug/Kg	4/20/05	4/20/05
EPA 8260B	Styrene	Not detected	6	0.88	ug/Kg	4/20/05	4/20/05
EPA 8260B	Tetrachloroethene	4.5 J	6	0.69	ug/Kg	4/20/05	4/20/05
EPA 8260B	Toluene	Not detected	6	0.83	ug/Kg	4/20/05	4/20/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.7	ug/Kg	4/20/05	4/20/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0419C16  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:26:28 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1540 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1039

Sample Collection Date: 4/19/05

ARF: 47189

APPL ID: AX18071

QCG: S86TTS-050419AC-05890

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.55	ug/Kg	4/20/05	4/20/05
EPA 8260B	Trichloroethene	990 E	6	0.90	ug/Kg	4/20/05	4/20/05
EPA 8260B	Vinyl Acetate	Not detected	64	1.3	ug/Kg	4/20/05	4/20/05
EPA 8260B	Vinyl chloride	Not detected	6	2.1	ug/Kg	4/20/05	4/20/05
EPA 8260B	Xylenes	Not detected	19	0.87	ug/Kg	4/20/05	4/20/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	117	52-149		%	4/20/05	4/20/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	101	65-135		%	4/20/05	4/20/05
EPA 8260B	Surrogate recovery: Toluene-d8	92.3	65-135		%	4/20/05	4/20/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0419C16  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:26 28 PM  
APPL-F1-SC-MCResMCPQL-REG MDLs



**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Sienkowski

ARF 47169

Project: 1990 986D WATS Bldg 88 Moffett Airfield

APPL ID: AX18071

Sample ID: 86-WOPT-1089

QCG: \$86TTD-C50424AM-89925

Sample Collection Date: 4/19/05

Method	Analyte	Result	FQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 21.5 Percent Moisture.)							
EPA 8260B-	Trichloroethene	600	32	10	ug/Kg	4/25/05	4/25/05
EPA 8260B-	Surrogate recovery: 1,2-Dichloroethane	108	52-149		%	4/25/05	4/25/05
EPA 8260B-	Surrogate recovery: 4-Bromofluorobenz	113	65-135		%	4/25/05	4/25/05
EPA 8260B-	Surrogate recovery: Toluene-d8	116	65-135		%	4/25/05	4/25/05

Run #: 0424M13  
Instrument: Max  
Sequence: M050422  
Dilution Factor: 50  
Initials: LF

Printed 5/18/05 11:36:11 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1340 E. Deera Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47189

Sample ID: 86-WOPT-1090

APPL ID: AX18072

Sample Collection Date: 4/19/05

QCG: S86TTW-050420AM-8589

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/20/05	4/20/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/20/05	4/20/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/20/05	4/20/05
EPA 8260B	1,1-Dichloroethane	Not detected	0.5	0.19	ug/L	4/20/05	4/20/05
EPA 8260B	1,1-Dichloroethene	Not detected	0.5	0.30	ug/L	4/20/05	4/20/05
EPA 8260B	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/20/05	4/20/05
EPA 8260B	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/20/05	4/20/05
EPA 8260B	2-Butanone	Not detected	5	0.6	ug/L	4/20/05	4/20/05
EPA 8260B	2-Hexanone	Not detected	5	0.92	ug/L	4/20/05	4/20/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/20/05	4/20/05
EPA 8260B	Acetone	Not detected	5	0.95	ug/L	4/20/05	4/20/05
EPA 8260B	Benzene	Not detected	0.5	0.16	ug/L	4/20/05	4/20/05
EPA 8260B	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/20/05	4/20/05
EPA 8260B	Bromoform	Not detected	0.5	0.14	ug/L	4/20/05	4/20/05
EPA 8260B	Bromomethane	Not detected	1	0.24	ug/L	4/20/05	4/20/05
EPA 8260B	Carbon disulfide	Not detected	0.5	0.2	ug/L	4/20/05	4/20/05
EPA 8260B	Carbon tetrachloride	Not detected	0.5	0.10	ug/L	4/20/05	4/20/05
EPA 8260B	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/20/05	4/20/05
EPA 8260B	Chloroethane	Not detected	0.5	0.21	ug/L	4/20/05	4/20/05
EPA 8260B	Chloroform	Not detected	0.5	0.16	ug/L	4/20/05	4/20/05
EPA 8260B	Chloromethane	Not detected	0.5	0.31	ug/L	4/20/05	4/20/05
EPA 8260B	cis-1,2-Dichloroethene	Not detected	0.5	0.16	ug/L	4/20/05	4/20/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/20/05	4/20/05
EPA 8260B	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/20/05	4/20/05
EPA 8260B	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/20/05	4/20/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/20/05	4/20/05
EPA 8260B	Methylene chloride	Not detected	5	0.35	ug/L	4/20/05	4/20/05
EPA 8260B	Styrene	Not detected	0.5	0.25	ug/L	4/20/05	4/20/05
EPA 8260B	Tetrachloroethene	Not detected	0.5	0.15	ug/L	4/20/05	4/20/05
EPA 8260B	Toluene	Not detected	0.5	0.17	ug/L	4/20/05	4/20/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	0.5	0.19	ug/L	4/20/05	4/20/05

Run #: 0420M06

Instrument: Max

Sequence: M050419

Dilution Factor: 1

Initials: LF

Printed 4/25/05 5:26:28 PM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.085D WATS Bldg 85 Moffett Airfield

Sample ID: 86-WOPT-1090

Sample Collection Date: 4/19/05

ARF: 47189

APPL ID: AX19072

QCG: S86TTW-050420AM-2589

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/20/05	4/20/05
EPA 8260B	Trichloroethene	Not detected	0.5	0.16	ug/L	4/20/05	4/20/05
EPA 8260B	Vinyl Acetate	Not detected	5	0.31	ug/L	4/20/05	4/20/05
EPA 8260B	Vinyl chloride	Not detected	0.5	0.23	ug/L	4/20/05	4/20/05
EPA 8260B	Xylenes	Not detected	1.5	0.19	ug/L	4/20/05	4/20/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	102	62-139		%	4/20/05	4/20/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	90.2	75-125		%	4/20/05	4/20/05
EPA 8260B	Surrogate recovery: Toluene-d8	106	75-125		%	4/20/05	4/20/05

Run #: 0420M06  
Instrument: Max  
Sequence: M050419  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:26:28 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 66-WOPT-570

Sample Collection Date: 4/19/05

ARF: 47189

APPL ID: AX18052

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	390	25	0.14	mg/L	4/25/05	4/27/05
6010B	Calcium (Ca)	382 E	5	0.0272	mg/L	4/25/05	4/27/05
6010B	Iron (Fe)	37.3	0.1	0.0258	mg/L	4/25/05	4/27/05
6010B	Magnesium (Mg)	94.6	5	0.0129	mg/L	4/25/05	4/27/05
6010B	Potassium (K)	7.4	5	0.0995	mg/L	4/25/05	4/27/05
6010B	Sodium (Na)	43.8	5	0.1111	mg/L	4/25/05	4/27/05

E = The reported value exceeds linear range.

Printed: 5/5/05 2:03:00 PM

2L-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.056D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-571

Sample Collection Date: 4/19/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47189

APPL ID: AX18053

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	510	50	0.27	mg/L	4/25/05	4/30/05
6010B	Calcium (Ca)	493 E	5	0.0272	mg/L	4/25/05	4/27/05
6010B	Iron (Fe)	28.1	0.1	0.0258	mg/L	4/25/05	4/27/05
6010B	Magnesium (Mg)	113	25	0.065	mg/L	4/25/05	4/27/05
6010B	Magnesium (Mg)	110 E	5	0.0129	mg/L	4/25/05	4/27/05
6010B	Potassium (K)	15.5	5	0.0995	mg/L	4/25/05	4/27/05
6010B	Sodium (Na)	45.5	5	0.1111	mg/L	4/25/05	4/27/05

E = The reported value exceeds linear range.

Printed: 5/5/05 2:03:00 PM

2L-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-572

Sample Collection Date: 4/19/05

ARF: 47189

APPL ID: AX18GS4

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	537	50	0.27	mg/L	4/25/05	4/30/05
6010B	Calcium (Ca)	520 E	5	0.0272	mg/L	4/25/05	4/27/05
6010B	Iron (Fe)	17.3	0.1	0.0258	mg/L	4/25/05	4/27/05
6010B	Magnesium (Mg)	98.9	5	0.0129	mg/L	4/25/05	4/27/05
6010B	Potassium (K)	16.1	5	0.0995	mg/L	4/25/05	4/27/05
6010B	Sodium (Na)	45.6	5	0.1111	mg/L	4/25/05	4/27/05

E = The reported value exceeds linear range.

Printed: 5/5/05 2:03:00 PM

2L-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FWI, Inc.  
1940 E. Deera Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47189

Sample ID: 86-WOPT-573

APPL ID: AX18055

Sample Collection Date: 4/13/05

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	278	25	0.14	mg/L	4/25/05	4/27/05
6010B	Calcium (Ca)	264 E	5	0.0272	mg/L	4/25/05	4/27/05
6010B	Iron (Fe)	13.5	0.1	0.0258	mg/L	4/25/05	4/27/05
6010B	Magnesium (Mg)	75.5	5	0.0129	mg/L	4/25/05	4/27/05
6010B	Potassium (K)	5.7	5	0.0995	mg/L	4/25/05	4/27/05
6010B	Sodium (Na)	42.1	5	0.1111	mg/L	4/25/05	4/27/05

E = The reported value exceeds linear range.

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2L-F1-SC-MCRes\MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: **86-WOPT-574**

Sample Collection Date: 4/15/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47189

APPL ID: **AX18056**

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	401	25	0.14	mg/L	4/25/05	4/27/05
6010B	Calcium (Ca)	390 E	5	0.0272	mg/L	4/25/05	4/27/05
6010B	Iron (Fe)	10.9	0.1	0.0258	mg/L	4/25/05	4/27/05
6010B	Magnesium (Mg)	65.5	5	0.0129	mg/L	4/25/05	4/27/05
6010B	Potassium (K)	7.8	5	0.0995	mg/L	4/25/05	4/27/05
6010B	Sodium (Na)	41.7	5	0.1111	mg/L	4/25/05	4/27/05

E = The reported value exceeds linear range.

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L-F1-SC-MCRes:MCPQL-REG MDLs



## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-575

Sample Collection Date: 4/19/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47189

APPL ID: AX18057

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	284	25	0.14	mg/L	4/25/05	4/27/05
6010B	Calcium (Ca)	280 E	5	0.0272	mg/L	4/25/05	4/27/05
6010B	Iron (Fe)	12.0	0.1	0.0258	mg/L	4/25/05	4/27/05
6010B	Magnesium (Mg)	53.9	5	0.0129	mg/L	4/25/05	4/27/05
6010B	Potassium (K)	10.5	5	0.0995	mg/L	4/25/05	4/27/05
6010B	Sodium (Na)	45.0	5	0.1111	mg/L	4/25/05	4/27/05

E = The reported value exceeds linear range.

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2L-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47189

Sample ID: 86-WOPT-1C77

APPL ID: AX13059

Sample Collection Date: 4/19/05

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	552	50	0.27	mg/L	4/25/05	4/27/05
6010B	Calcium (Ca)	546 E	5	0.0272	mg/L	4/25/05	4/27/05
6010B	Iron (Fe)	19.3	0.1	0.0258	mg/L	4/25/05	4/27/05
6010B	Magnesium (Mg)	127	25	0.065	mg/L	4/25/05	4/27/05
6010B	Magnesium (Mg)	127 E	5	0.0129	mg/L	4/25/05	4/27/05
6010B	Potassium (K)	12.0	5	0.0995	mg/L	4/25/05	4/27/05
6010B	Sodium (Na)	58.1	25	0.56	mg/L	4/25/05	4/27/05
6010B	Sodium (Na)	59.3 E	5	0.1111	mg/L	4/25/05	4/27/05

E = The reported value exceeds linear range.

Printed: 5/5/05 2:03:00 PM

L-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47199

Sample ID: 86-WOPT-1079

APPL ID: AX18061

Sample Collection Date: 4/19/05

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	424	25	0.14	mg/L	4/25/05	4/27/05
6010B	Calcium (Ca)	415 E	5	0.0272	mg/L	4/25/05	4/27/05
6010B	Iron (Fe)	22.9	0.1	0.0258	mg/L	4/25/05	4/27/05
6010B	Magnesium (Mg)	132	25	0.065	mg/L	4/25/05	4/27/05
6010B	Magnesium (Mg)	130 E	5	0.0129	mg/L	4/25/05	4/27/05
6010B	Potassium (K)	11.2	5	0.0995	mg/L	4/25/05	4/27/05
6010B	Sodium (Na)	45.1	5	0.1111	mg/L	4/25/05	4/27/05

E = The reported value exceeds linear range.

Printed 5/5/05 2:03:00 PM

2L-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47189

Sample ID: **86-WOPT-1080**

APPL ID: **AX18062**

Sample Collection Date: 4/19/05

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	414	25	0.14	mg/L	4/25/05	4/27/05
6010B	Calcium (Ca)	419 E	5	0.0272	mg/L	4/25/05	4/27/05
6010B	Iron (Fe)	23.1	0.1	0.0258	mg/L	4/25/05	4/27/05
6010B	Magnesium (Mg)	128	25	0.065	mg/L	4/25/05	4/27/05
6010B	Magnesium (Mg)	127 E	5	0.0129	mg/L	4/25/05	4/27/05
6010B	Potassium (K)	11.8	5	0.0995	mg/L	4/25/05	4/27/05
6010B	Sodium (Na)	47.2	5	0.1111	mg/L	4/25/05	4/27/05

E = The reported value exceeds linear range.

Printed: 5/5/05 2:03:00 PM  
2L-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.085D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1082

Sample Collection Date: 4/19/05

ARF: 47189

APPL ID: AX18064

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	194	25	0.14	mg/L	4/25/05	4/27/05
6010B	Calcium (Ca)	196 E	5	0.0272	mg/L	4/25/05	4/27/05
6010B	Iron (Fe)	8.1	0.1	0.0258	mg/L	4/25/05	4/27/05
6010B	Magnesium (Mg)	57.9	5	0.0129	mg/L	4/25/05	4/27/05
6010B	Potassium (K)	7.2	5	0.0995	mg/L	4/25/05	4/27/05
6010B	Sodium (Na)	40.3	5	0.1111	mg/L	4/25/05	4/27/05

E = The reported value exceeds linear range.

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2L-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: **86-WOPT-1083**

Sample Collection Date: 4/19/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47189

APPL ID: **AX18065**

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	312	25	0.14	mg/L	4/25/05	4/27/05
6010B	Calcium (Ca)	310 E	5	0.0272	mg/L	4/25/05	4/27/05
6010B	Iron (Fe)	22.9	0.1	0.0258	mg/L	4/25/05	4/27/05
6010B	Magnesium (Mg)	65.7	5	0.0129	mg/L	4/25/05	4/27/05
6010B	Potassium (K)	11.1	5	0.0995	mg/L	4/25/05	4/27/05
6010B	Sodium (Na)	42.6	5	0.1111	mg/L	4/25/05	4/27/05

E = The reported value exceeds linear range.

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2L-F1-SC-MCRes/MCPQL-REG MDLs

# Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APFL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-570

Sample Collection Date: 4/19/05

APPL ID: AX18052

ARF: 47189

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	59900	1000	80	ug/L	4/21/05	4/21/05
EPA 300.0	Nitrate	2430	200	15	ug/L	4/21/05	4/21/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/21/05	4/21/05
EPA 300.0	Sulfate	559000 E	1000	90	ug/L	4/21/05	4/21/05
EPA 300.0	Sulfate	476000	5000	450	ug/L	4/21/05	4/21/05
EPA 310.1	Bicarbonate	330	5	0.787	mg/L	4/26/05	4/26/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/26/05	4/26/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bierkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-571

Sample Collection Date: 4/19/05

APPL ID: AX18053

ARF: 47189

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	48700	1000	80	ug/L	4/21/05	4/21/05
EPA 300.0	Nitrate	2620	200	15	ug/L	4/21/05	4/21/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/21/05	4/21/05
EPA 300.0	Sulfate	583000 E	1000	90	ug/L	4/21/05	4/21/05
EPA 300.0	Sulfate	497000	5000	450	ug/L	4/21/05	4/21/05
EPA 310.1	Bicarbonate	328	5	0.787	mg/L	4/26/05	4/26/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/26/05	4/26/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs



## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-572

Sample Collection Date: 4/19/05

APPL ID: AX18054

ARF: 47189

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	48100	1000	80	ug/L	4/21/05	4/21/05
EPA 300.0	Nitrate	2550	200	15	ug/L	4/21/05	4/21/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/21/05	4/21/05
EPA 300.0	Sulfate	570000 E	1000	90	ug/L	4/21/05	4/21/05
EPA 300.0	Sulfate	485000	5000	450	ug/L	4/21/05	4/21/05
EPA 310.1	Bicarbonate	331	5	0.787	mg/L	4/26/05	4/26/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/26/05	4/26/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-573

Sample Collection Date: 4/19/05

APPL ID: AX18055

ARF: 47189

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	41100	1000	80	ug/L	4/21/05	4/21/05
EPA 300.0	Nitrate	4380	200	15	ug/L	4/21/05	4/21/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/21/05	4/21/05
EPA 300.0	Sulfate	497000 E	1000	90	ug/L	4/21/05	4/21/05
EPA 300.0	Sulfate	422000	5000	450	ug/L	4/21/05	4/21/05
EPA 310.1	Bicarbonate	326	5	0.787	mg/L	4/26/05	4/26/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/26/05	4/26/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-574

Sample Collection Date: 4/19/05

APPL ID: AX18056

ARF: 47189

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	36100	1000	80	ug/L	4/21/05	4/21/05
EPA 300.0	Nitrate	2570	200	15	ug/L	4/21/05	4/21/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/21/05	4/21/05
EPA 300.0	Sulfate	353000 E	1000	90	ug/L	4/21/05	4/21/05
EPA 300.0	Sulfate	292000	5000	450	ug/L	4/21/05	4/21/05
EPA 310.1	Bicarbonate	260	5	0.787	mg/L	4/26/05	4/26/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/26/05	4/26/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-575

Sample Collection Date: 4/19/05

APPL ID: AX18057

ARF: 47189

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	25200	1000	80	ug/L	4/21/05	4/21/05
EPA 300.0	Nitrate	2650	200	15	ug/L	4/21/05	4/21/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/21/05	4/21/05
EPA 300.0	Sulfate	104000 E	1000	90	ug/L	4/21/05	4/21/05
EPA 300.0	Sulfate	91800	5000	450	ug/L	4/21/05	4/21/05
EPA 310.1	Bicarbonate	230	5	0.787	mg/L	4/26/05	4/26/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/26/05	4/26/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1077

Sample Collection Date: 4/19/05

APPL ID: AX18059

ARF: 47189

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	41600	1000	80	ug/L	4/21/05	4/21/05
EPA 300.0	Nitrate	5220	200	15	ug/L	4/21/05	4/21/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/21/05	4/21/05
EPA 300.0	Sulfate	467000 E	1000	90	ug/L	4/21/05	4/21/05
EPA 300.0	Sulfate	394000	5000	450	ug/L	4/21/05	4/21/05
EPA 310.1	Bicarbonate	366	5	0.787	mg/L	4/26/05	4/26/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/26/05	4/26/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.085D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1079

Sample Collection Date: 4/19/05

APPL ID: AX18061

ARF: 47189

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	41890	1000	80	ug/L	4/21/05	4/21/05
EPA 300.0	Nitrate	8190	200	15	ug/L	4/21/05	4/21/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/21/05	4/21/05
EPA 300.0	Sulfate	370000 E	1000	90	ug/L	4/21/05	4/21/05
EPA 300.0	Sulfate	648000	5000	450	ug/L	4/21/05	4/21/05
EPA 310.1	Bicarbonate	376	5	0.787	mg/L	4/26/05	4/26/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/26/05	4/26/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1080

Sample Collection Date: 4/19/05

APPL ID: AX18062

ARF: 47189

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	41900	1000	80	ug/L	4/21/05	4/21/05
EPA 300.0	Nitrate	8700	200	15	ug/L	4/21/05	4/21/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/21/05	4/21/05
EPA 300.0	Sulfate	370000 E	1000	90	ug/L	4/21/05	4/21/05
EPA 300.0	Sulfate	307000	5000	450	ug/L	4/21/05	4/21/05
EPA 310.1	Bicarbonate	369	5	0.787	mg/L	4/26/05	4/26/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/26/05	4/26/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1082

Sample Collection Date: 4/19/05

APPL ID: AX18064

ARF: 47189

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	42300	1000	80	ug/L	4/21/05	4/21/05
EPA 300.0	Nitrate	11700	200	15	ug/L	4/21/05	4/21/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/21/05	4/21/05
EPA 300.0	Sulfate	322000 E	1000	90	ug/L	4/21/05	4/21/05
EPA 300.0	Sulfate	263000	5000	450	ug/L	4/21/05	4/21/05
EPA 310.1	Bicarbonate	322	5	0.787	mg/L	4/26/05	4/26/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/26/05	4/26/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs



## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1083

Sample Collection Date: 4/19/05

APPL ID: AX18065

ARF: 47189

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	42300	1000	80	ug/L	4/22/05	4/22/05
EPA 300.0	Nitrate	7930	200	15	ug/L	4/22/05	4/22/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/22/05	4/22/05
EPA 300.0	Sulfate	234000 E	1000	90	ug/L	4/22/05	4/22/05
EPA 300.0	Sulfate	197000	5000	450	ug/L	4/21/05	4/21/05
EPA 310.1	Bicarbonate	254	5	0.787	mg/L	4/26/05	4/26/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/26/05	4/26/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech EW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1084

APPL ID: AX18066

Sample Collection Date: 4/19/05

ARF: 47189

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 21.1 Percent Moisture.)							
CLP MOIST	Moisture	21.1	2.0		%	4/19/05	4/19/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

# Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1085

Sample Collection Date: 4/19/05

APPL ID: AX18067

ARF: 47189

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 22.3 Percent Moisture.)							
CLP MOIST	Moisture	22.3	2.0		%	4/19/05	4/19/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Biankowski

Project: 1390.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1036

Sample Collection Date: 4/19/05

APPL ID: AX18068

ARF: 47189

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 25.6 Percent Moisture.)							
CLP MOIST	Moisture	25.6	2.0		%	4/19/05	4/19/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 38 Moffett Airfield

Sample ID: 86-WOPT-1087

Sample Collection Date: 4/19/05

APPL ID: AX18069

ARF: 47189

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 23.0 Percent Moisture.)							
CLP MOIST	Moisture	23.0	2.0		%	4/19/05	4/19/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-1088**

Sample Collection Date: 4/19/05

APPL ID: AX18070

ARF: 47189

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 34.1 Percent Moisture.)							
CLP MOIST	Moisture	34.1	2.0		%	4/19/05	4/19/05

Printed: 5/16/05 6:11:14 PM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.036D WATS Bldg 88 Moffett Airfield

Sample ID: 85-WOPT-1089

Sample Collection Date: 4/19/05

APPL ID: AX18071

ARF: 47189

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 21.5 Percent Moisture.)							
CLP MOIST	Moisture	21.5	2.0		%	4/19/05	4/19/05

Printed: 5/16/05 6:11:14 PM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1090

Sample Collection Date: 4/19/05

APPL ID: AX18072

ARF: 47189

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
SW846 9060	Total Organic Carbon	0.85	0.5	0.129	mg/L	5/16/05	5/16/05

Printed: 5/16/05 6:11:14 PM

APPL-F1-SC-MCRes/MCPQL-REG MDLs





May 6, 2005

Service Request No: K2502914

Robert Wise  
APPL Inc.  
4203 W. Swift Avenue  
Fresno, CA 93722

**RE: 47189**

Dear Robert:

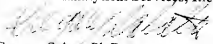
Enclosed are the results of the sample(s) submitted to our laboratory on April 21, 2005. For your reference, these analyses have been assigned our service request number K2502914.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAC standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3376.

Respectfully submitted,

**Columbia Analytical Services, Inc.**

  
Gregory Salata, Ph.D.  
Project Chemist

GIS/dj

Page 1 of 15

COLUMBIA ANALYTICAL SERVICES, INC.

Client: Agriculture & Priority Pollutants Labs  
Project: 47189  
Sample Matrix: Soil

Service Request No.: K2562914  
Date Received: 04/21/05

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier III validation deliverables including summary forms and all of the associated raw data for each of the analyses. When appropriate to the method, method blank results have been reported with each analytical test.

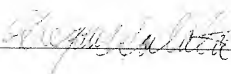
Sample Receipt

Six soil samples were received for analysis at Columbia Analytical Services on 04/21/05. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

General Chemistry Parameters

No anomalies associated with the analysis of these samples were observed.

Approved by



Date

5/6/05

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## COLUMBIA ANALYTICAL SERVICES, INC.

## Analytical Report

Client : Agriculture & Priority Pollutants Labs  
 Project Name : NA  
 Project Number : 47189  
 Sample Matrix : SOIL

Service Request : K2502914  
 Date Collected : 04/19/05  
 Date Received : 04/21/05

## Carbon, Total Organic

Analysis Method : Walkley-Black  
 Test Notes :

Units : mg/Kg (ppm)  
 Basis : Dry

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
86-WOPT-1084	K2502914-001	2000	900	1	04/29/05	2209	
86-WOPT-1085	K2502914-002	2000	900	1	04/29/05	1650	J
86-WOPT-1086	K2502914-003	2000	900	1	04/29/05	1140	J
86-WOPT-1087	K2502914-004	2000	900	1	04/29/05	919	J
86-WOPT-1088	K2502914-005	2000	900	1	04/29/05	1490	J
86-WOPT-1089	K2502914-006	2000	900	1	04/29/05	1050	J
Method Blank	K2502914-MB	2000	900	1	04/29/05	ND	

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**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Air Field, Building 88, CTO 86  
**Collection Date:** April 19, 2005  
**LDC Report Date:** May 25, 2005  
**Matrix:** Soil/Water  
**Parameters:** Volatiles  
**Validation Level:** EPA Level III & IV  
**Laboratory:** APPL, Inc.

**Sample Delivery Group (SDG):** 47189

**Sample Identification**

86-WOPT-1084  
86-WOPT-1085  
86-WOPT-1086\*\*  
86-WOPT-1087  
86-WOPT-1088  
86-WOPT-1088DL  
86-WOPT-1089  
86-WOPT-1089DL  
86-WOPT-1090

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 9 soil samples and one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## III. Initial Calibration

Initial calibration was performed using required standard concentrations.

The mean percent relative standard deviation (%RSD) for all compounds was less than or equal to 15.0% and less than or equal to 30.0% for all individual compounds.

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination ( $r^2$ ) was greater than or equal to 0.990.

Average relative response factors (RRF) for all system performance check compounds (SPCCs) were within method and validation criteria.

## IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

For the purposes of technical evaluation, all compounds were evaluated against the 20.0% (%D) National Functional Guideline criteria. Unless noted above, all compounds were within the validation criteria.

All of the continuing calibration RRF values for all system performance check compounds (SPCCs) were within method and validation criteria.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Analysis Date	Compound TIC (RT in minutes)	Concentration	Associated Samples
06G420A-BLK	4/23/05	Acetone	1.1 ug/L	66-WQFT-129C

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater ( $>10X$  for common contaminants,  $>5X$  for other contaminants) than the concentrations found in the associated method blanks.

#### VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

#### VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

#### VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### IX. Regional Quality Assurance and Quality Control

Not applicable.

#### X. Internal Standards

All internal standard areas and retention times were within QC limits.

#### XI. Target Compound Identifications

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

#### XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
86-WOPT-1088 86-WOPT-1089	Trichloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range	J (all detects)	A

Raw data were not evaluated for the samples reviewed by Level III criteria.

### **XIII. Tentatively Identified Compounds (TICs)**

Tentatively identified compounds were not reported by the laboratory.

### **XIV. System Performance**

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

### **XV. Overall Assessment**

Data flags are summarized at the end of this report if data has been qualified.

### **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

### **XVII. Field Blanks**

Sample 86-WOPT-1090 was identified as an equipment rinsate. No volatile contaminants were found in this blank.



Moffett Air Field, Building 88, CTO 86

Volatiles - Data Qualification Summary - SDG 47189

SDG	Sample	Compound	Flag	A or P	Reason
47189	86-WOPT-1088 86-WOPT-1089	Trichloroethene	✓ (all detects)	A	Compound quantitation and CROLS

Moffett Air Field, Building 88, CTO 86

Volatiles - Laboratory Blank Data Qualification Summary - SDG 47189

No Sample Data Qualified in this SDG

# **Laboratory Data Consultants, Inc.** **Data Validation Report**

**Project/Site Name:** Moffett Air Field, Building 88, CTO 86

**Collection Date:** April 19, 2005

**LDC Report Date:** May 25, 2005

**Matrix:** Water

**Parameters:** Volatiles

**Validation Level:** EPA Level III & IV

**Laboratory:** APPL, Inc.

**Sample Delivery Group (SDG):** 47189

## **Sample Identification**

86-WOPT-569	86-WOPT-1080**
86-WOPT-570	86-WOPT-1080DL**
86-WOPT-570DL	86-WOPT-1081
86-WOPT-571	86-WOPT-1081DL
86-WOPT-571DL	86-WOPT-1082
86-WOPT-572	86-WOPT-1082DL
86-WOPT-572DL	86-WOPT-1083
86-WOPT-573**	86-WOPT-1083DL
86-WOPT-573DL**	86-WOPT-1082MS
86-WOPT-574	86-WOPT-1082MSD
86-WOPT-574DL	
86-WOPT-575	
86-WOPT-575DL	
86-WOPT-1076	
86-WOPT-1077**	
86-WOPT-1077DL**	
86-WOPT-1078	
86-WOPT-1078DL	
86-WOPT-1079	
86-WOPT-1079DL	

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 30 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Contract Laboratory Program Statement of Work (SOW) OLM04.2 for Volatiles.

This review follows USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999); the following subsections correlate to the above guidelines.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

### I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

### II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

### III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 30.0% for all compounds with the following exceptions:

Date	Compound	%RSD	Associated Samples	Flag	A or P
4/18/05	Bromomethane	35	86-WOPT-569 86-WOPT-570 86-WOPT-571 86-WOPT-572 86-WOPT-573** 86-WOPT-574 86-WOPT-575 86-WOPT-1076 86-WOPT-1077** 86-WOPT-1078 86-WOPT-1079 86-WOPT-1080** 86-WOPT-1081 86-WOPT-1082 86-WOPT-1083 86-WOPT-1082MS 86-WOPT-1082MSD 050419ABLK-1WN 050420ABLK-1WN	J (all detects) UJ (all non-detects)	A

Average relative response factors (RRF) for all volatile target compounds and system monitoring compounds were within validation criteria

### IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 25.0% with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
4/19/05	Chlorobenzene	30	86-WOPT-509 86-WOPT-570 86-WOPT-571 86-WOPT-572 86-WOPT-573** 86-WOPT-574 86-WOPT-575 86-WOPT-1076 86-WOPT-1077** 86-WOPT-1078 86-WOPT-1079 86-WOPT-1080** 050419ABLK-1WN	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A
	2-hexanone	31			

All of the continuing calibration RRF values were within validation criteria.

#### V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

#### VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the SOW. All surrogate recoveries (%R) were within QC limits.

#### VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were not within QC limits. Since the sample concentration was greater than the spiked concentration, no data were qualified.

#### VIII. Laboratory Control Samples (LCS)

Although laboratory control samples were not required by the method, laboratory control samples were reported by the laboratory. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### IX. Regional Quality Assurance and Quality Control

Not applicable.

#### X. Internal Standards

All internal standard areas and retention times were within QC limits.

## XI. Target Compound Identifications

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
86-WOPT-570 86-WOPT-571 86-WOPT-572 86-WOPT-573** 86-WOPT-574	rac-1,2-Trichloroethane Tetrachloroethane Trichloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects) J (all detects)	A
86-WOPT-575	1,1,2-Trichloro-1,2,2-trifluoroethane Tetrachloroethene Trichloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects) J (all detects)	A
86-WOPT-1077** 86-WOPT-1079 86-WOPT-1080** 86-WOPT-1081	cis-1,2-Dichloroethene Trichloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects)	A
86-WOPT-1078	cis-1,2-Dichloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	A
86-WOPT-1082	1,1,2-Trichloro-1,2,2-trifluoroethane cis-1,2-Dichloroethene Trichloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects) J (all detects)	A
86-WOPT-1083	1,1,2-Trichloro-1,2,2-trifluoroethane 1,1-Dichloroethene cis-1,2-Dichloroethene Trichloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects) J (all detects) J (all detects)	A

Raw data were not evaluated for the samples reviewed by Level III criteria.

## XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

#### XIV. System Performance

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

#### XV. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

#### XVI. Field Duplicates

Samples 86-WOPT-571 and 86-WOPT-572, samples 86-WOPT-571DL and 86-WOPT-572DL, samples 86-WOPT-1079 and 86-WOPT-1080\*\*, and samples 86-WOPT-1079DL and 86-WOPT-1080DL\*\* were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	86-WOPT-571	86-WOPT-572	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.1	5.1	0
1,1-Dichloroethane	13	14	7
1,1-Dichloroethene	31	36	15
cis-1,2-Dichloroethene	2100	2300	9
Tetrachloroethene	4100	4100	0
trans-1,2-Dichloroethene	26	26	7
Trichloroethene	1500	1700	12
Vinyl chloride	3.7	0.5U	Not calculable

Compound	Concentration (ug/L)		RPD
	86-WOPT-571DL	86-WOPT-572DL	
cis-1,2-Dichloroethene	3600	3600	5
Tetrachloroethene	1500	1500	0

Compound	Concentration (ug/L)		RPD
	86-WOPT-571DL	86-WOPT-572DL	
Trichloroethene	1800	1900	5

Compound	Concentration (ug/L)		RPD
	86-WOPT-1079	86-WOPT 1080**	
1,1,1-Trichloroethane	1.8	1.8	12
1,1,2-Trichloro-1,2,2-trifluoroethane	41	30	31
1,1-Dichloroethane	15	13	14
1,1-Dichloroethene	37	29	24
Chloroform	0.48	0.39	21
cis-1,2-Dichloroethene	410	360	13
Tetrachloroethene	10	9.2	8
trans-1,2-Dichloroethene	2.2	1.7	26
Trichloroethene	1400	1200	15
Vinyl chloride	1.1	0.84	27

Compound	Concentration (ug/L)		RPD
	86-WOPT-1079DL	86-WOPT-1080DL**	
cis-1,2-Dichloroethene	250	260	4
Trichloroethene	1100	1400	24

## XVII. Field Blanks

Samples 86-WOPT-569 and 86-WOPT-1076 were identified as trip blanks. No volatile contaminants were found in these blanks with the following exceptions:



Trip Blank ID	Compound	Concentration (ug/L)
06-WCPT-1670	Tetrahaloethylene Trichloroethene	8.5 1.2
06-WOPT-589	Methylene chloride	0.43

Moffett Air Field, Building 88, CTO 86  
Volatiles - Data Qualification Summary - SDG 47189

SDG	Sample	Compound	Flag	A or P	Reason
47189	86-WOPT-569 86-WOPT-570 86-WOPT-571 86-WOPT-572 86-WOPT-573** 86-WOPT-574 86-WOPT-575 86-WOPT-1078 86-WOPT-1077** 86-WOPT-1078 86-WOPT-1079 86-WOPT-1080** 86-WOPT-1081 86-WOPT-1082 86-WOPT-1083	Bromomethane	J (all detects) UJ (all non-detects)	A	Initial calibration (%RSD)
47189	86-WOPT-569 86-WOPT-570 86-WOPT-571 86-WOPT-572 86-WOPT-573** 86-WOPT-574 86-WOPT-575 86-WOPT-1078 86-WOPT-1077** 86-WOPT-1078 86-WOPT-1079 86-WOPT-1080**	Chloroethane  2-Hexanone	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
47189	86-WOPT-570 86-WOPT-571 86-WOPT-572 86-WOPT-573** 86-WOPT-574	cis-1,2-Dichloroethene Tetrachloroethene Trichloroethene	J (all detects) J (all detects) J (all detects)	A	Compound quantitation and CRLs
47189	86-WOPT-575	1,1,2-Trichloro-1,2,2-trifluoroethane Tetrachloroethene Trichloroethene	J (all detects) J (all detects) J (all detects)	A	Compound quantitation and CRLs
47189	86-WOPT-1077** 86-WOPT-1079 86-WOPT-1080** 86-WOPT-1081	cis-1,2-Dichloroethene Trichloroethene	J (all detects) J (all detects)	A	Compound quantitation and CRLs
47189	86-WOPT-1076	cis-1,2-Dichloroethene	J (all detects)	A	Compound quantitation and CRLs
47189	86-WOPT-1082	1,1,2-Trichloro-1,2,2-trifluoroethane cis-1,2-Dichloroethene Trichloroethene	J (all detects) J (all detects) J (all detects)	A	Compound quantitation and CRLs

SDG	Sample	Compound	Flag	A or P	Reason
47189	85-WOF1-1UB5	1,1,2-Trichloro-1,2,2-trifluoroethane 1,1-Dichloroethene cis-1,2-Dichloroethene Trichloroethene	J (all detects) J (all detects) J (all detects) J (all detects)	A	Compound quantitation and CRQLs

Moffett Air Field, Building 88, CTO 86

Volatiles - Laboratory Blank Data Qualification Summary - SDG 47189

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Air Field, Building 88, CTO 86  
**Collection Date:** April 19, 2005  
**LDC Report Date:** May 25, 2005  
**Matrix:** Water  
**Parameters:** Metals  
**Validation Level:** EPA Level III & IV  
**Laboratory:** APPL, Inc.

**Sample Delivery Group (SDG):** 47189

**Sample Identification**

86-WOPT-570	86-WOPT-1083
86-WOPT-570DL	86-WOPT-1083DL
86-WOPT-571	86-WOPT-1082MS
86-WOPT-571DL	86-WOPT-1082MSD
86-WOPT-572	
86-WOPT-572DL	
86-WOPT-573**	
86-WOPT-573DL**	
86-WOPT-574	
86-WOPT-574DL	
86-WOPT-575	
86-WOPT-575DL	
86-WOPT-1077**	
86-WOPT-1077DL**	
86-WOPT-1079	
86-WOPT-1079DL	
86-WOPT-1080**	
86-WOPT-1080DL**	
86-WOPT-1082	
86-WOPT-1082DL	

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 24 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 6010B for Metals. The metals analyzed were Calcium, Iron, Magnesium, Potassium, and Sodium.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

### **i. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

### **II. Calibration**

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

### **III. Blanks**

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Calcium Magnesium Sodium	0.030 mg/L 0.016 mg/L 0.33 mg/L	All samples in SDG 47189

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or were significantly greater ( $>5X$  blank contaminants) than the concentrations found in the associated method blanks.

### **IV. ICP Interference Check Sample (ICS) Analysis**

The frequency of analysis was met.

The criteria for analysis were met.

### **V. Matrix Spike Analysis**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or B
86-WOPT-1082MS-MSD 86-WOPT-570 86-WOPT-571 86-WOPT-572 86-WOPT-573** 86-WOPT-574 86-WOPT-575 86-WOPT-1077** 86-WOPT-1079 86-WOPT-1080** 86-WOPT-1082 86-WOPT-1083	Iron	-	-	38 (≤20)	J (all detects) UJ (all non-detects)	A

#### VI. Duplicate Sample Analysis

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

#### VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### VIII. Internal Standards

ICP-MS was not utilized in this SDG.

#### IX. Furnace Atomic Absorption QC

Graphite furnace atomic absorption was not utilized in this SDG.

#### X. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met.

#### XI. Sample Result Verification

All sample result verification met validation criteria with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
86-WOPT-570 86-WOPT-572 86-WOPT-573** 86-WOPT-574 86-WOPT-575 86-WOPT-1082 86-WOPT-1083	Calcium	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	A
86-WOPT-571 86-WOPT-1079 86-WOPT-1080**	Calcium Magnesium	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects)	A
86-WOPT-1077**	Calcium Magnesium Sodium	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects) J (all detects)	A

Raw data were not evaluated for samples reviewed by Level III criteria.

## XII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## XIII. Field Duplicates

Samples 86-WOPT-571 and 86-WOPT-572, samples 86-WOPT-571DL and 86-WOPT-572DL, samples 86-WOPT-571DL and 86-WOPT-572. samples 86-WOPT-1079 and 86-WOPT-1080\*\*, and samples 86-WOPT-1079DL and 86-WOPT-1080DL\*\* were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:

Compound	Concentration (mg/L)		RPD
	86-WOPT-571	86-WOPT-572	
Calcium	493	520	5
Iron	28.1	17.3	48
Magnesium	110	98.9	11
Potassium	15.5	16.1	4
Sodium	45.5	45.6	6



Compound	Concentration (mg/L)		RPD
	86-WOPT-571DL	86-WOPT-572DL	
Calcium	510	537	5

Compound	Concentration (mg/L)		RPD
	86-WOPT-571DL	86-WOPT-572	
Magnesium	113	98.9	13

Compound	Concentration (mg/L)		RPD
	86-WOPT-1079	86-WOPT-1080**	
Calcium	415	419	1
Iron	22.9	23.1	1
Magnesium	130	127	2
Potassium	11.2	11.8	5
Sodium	45.1	47.2	5

Compound	Concentration (mg/L)		RPD
	86-WOPT-1079DL	86-WOPT-1080DL**	
Calcium	424	414	2
Magnesium	132	128	3

#### XIV. Field Blanks

No field blanks were identified in this SDG.

**Moffett Air Field, Building 88, CTO 86**  
**Metals - Data Qualification Summary - SDG 47189**

SDG	Sample	Analyte	Flag	A or P	Reason
47189	86-WOPT-570 86-WOPT-571 86-WOPT-572 86-WOPT-573** 86-WOPT-574 86-WOPT-575 86-WOPT-1077** 86-WOPT-1079 86-WOPT-1080** 86-WOPT-1082 86-WOPT-1083	Iron	J (all detects) LJ (all non-detects)	A	Matrix spike/Matrix spike duplicates (RPD)
47189	86-WOPT-570 86-WOPT-572 86-WOPT-573** 86-WOPT-574 86-WOPT-575 86-WOPT-1082 86-WOPT-1083	Calcium	J (all detects)	A	Sample result verification
47189	86-WOPT-571 86-WOPT-1079 86-WOPT-1080**	Calcium Magnesium	J (all detects) J (all detects)	A	Sample result verification
47189	86-WOPT-1077**	Calcium Magnesium Sodium	J (all detects) J (all detects) J (all detects)	A	Sample result verification

**Moffett Air Field, Building 88, CTO 86**  
**Metals - Laboratory Blank Data Qualification Summary - SDG 47189**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Air Field, Building 88, CTO 86  
**Collection Date:** April 19, 2005  
**LDC Report Date:** May 25, 2005  
**Matrix:** Soil/Water  
**Parameters:** Wet Chemistry  
**Validation Level:** EPA Level III & IV  
**Laboratory:** APPL, Inc./Columbia Analytical Services, Inc.

**Sample Delivery Group (SDG):** 47189/K2502914

**Sample Identification**

86-WOPT-570	86-WOPT-1063
86-WOPT-570DL	86-WOPT-1063DL
86-WOPT-571	86-WOPT-1064
86-WOPT-571DL	86-WOPT-1065
86-WOPT-572	86-WOPT-1066**
86-WOPT-572DL	86-WOPT-1067
86-WOPT-573**	86-WOPT-1068
86-WOPT-573DL**	86-WOPT-1069
86-WOPT-574	86-WOPT-1090
86-WOPT-574DL	86-WOPT-1082MS
86-WOPT-575	86-WOPT-1082MSD
86-WOPT-575DL	86-WOPT-1084DUP
86-WOPT-1077**	
86-WOPT-1077DL**	
86-WOPT-1079	
86-WOPT-1079DL	
86-WOPT-1080**	
86-WOPT-1080DL**	
86-WOPT-1082	
86-WOPT-1082DL	

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 7 soil samples and 25 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 300.0 for Chloride, Nitrate, Nitrite, and Sulfate, EPA Method 310.1 for Carbonate and Bicarbonate, and Walkley-Black Method and EPA SW 846 Method 9060 for Total Organic Carbon.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section IX.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met with the following exceptions:

Sample	Analyte	Total Time From Sample Collection Until Analysis	Required Holding Time From Sample Collection Until Analysis	Flag	A or P
86-WOPT-570	Nitrate	49.6 hours	48 hours	J (all detects) UJ (all non-detects)	P
86-WOPT-571	Nitrite	49.5 hours	48 hours	J (all detects) UJ (all non-detects)	
86-WOPT-572					
86-WOPT-573**					
86-WOPT-574	Nitrate	49.25 hours	48 hours	J (all detects) UJ (all non-detects)	P
86-WOPT-1080**	Nitrite	49.25 hours	48 hours	J (all detects) UJ (all non-detects)	
86-WOPT-575	Nitrate	49 hours	48 hours	J (all detects) UJ (all non-detects)	P
86-WOPT-1079	Nitrite	49 hours	48 hours	J (all detects) UJ (all non-detects)	
86-WOPT-1082MSD	Nitrate	48.25 hours	48 hours	J (all detects) UJ (all non-detects)	P
	Nitrite	48.25 hours	48 hours	J (all detects) UJ (all non-detects)	
86-WOPT-1083	Nitrate	49 hours	48 hours	J (all detects) UJ (all non-detects)	P
	Nitrite	49 hours	48 hours	J (all detects) UJ (all non-detects)	

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

### a. Initial Calibration

All criteria for the initial calibration of each method were met.

### b. Calibration Verification

Calibration verification frequency and analysis criteria were met for each method when applicable with the following exceptions.

Date	Lab. Reference ID	Analyte	%R (Limits)	Associated Samples	Flag	A or P
5/16/05	CCV	Total organic carbon	86.8 (90-110)	86-WOPT-1090	J (all detects) UJ (all non-detects)	n

### III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the method blanks with the following exceptions:

Method Blank ID	Analyte	Concentration	Associated Samples
ICB/CUB	Chloride	2.49 mg/L	86-WOPT-570 86-WOPT-571 86-WOPT-572 86-WOPT-573** 86-WOPT-574 86-WOPT-575 86-WOPT-1083

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater ( >5X blank contaminants) than the concentrations found in the associated method blanks.

### IV. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
86-WOPT-1082MS, MSD 86-WOPT-570 86-WOPT-570DL 86-WOPT-571 86-WOPT-571DL 86-WOPT-572 86-WOPT-572DL 86-WOPT-573** 86-WOPT-573DL** 86-WOPT-574 86-WOPT-574DL 86-WOPT-575 86-WOPT-575DL 86-WOPT-1077** 86-WOPT-1077DL** 86-WOPT-1079 86-WOPT-1079DL 86-WOPT-1080** 86-WOPT-1080DL** 86-WOPT-1082 86-WOPT-1082DL 86-WOPT-1083 86-WOPT-1083DL	Sulfate	78.7 (80-120)	78.0 (80-120)	-	J (all detects) UJ (all non-detects)	A

#### V. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

#### VI. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### VII. Sample Result Verification

All sample result verification met validation criteria with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
86-WOPT-570 86-WOPT-571 86-WOPT-572 86-WOPT-573** 86-WOPT-574 86-WOPT-575 86-WOPT-1077** 86-WOPT-1079 86-WOPT-1079DL 86-WOPT-1080** 86-WOPT-1082 86-WOPT-1083	Sulfate	Sample result exceeded calibration range.	Reported result should be within calibration range	J (all detects)	A

Raw data were not evaluated for the samples reviewed by Level III criteria.

### VIII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### IX. Field Duplicates

Samples 86-WOPT-571 and 86-WOPT-572, samples 86-WOPT-571DL and 86-WOPT-572DL, samples 86-WOPT-1079 and 86-WOPT-1080\*\*, and samples 86-WOPT-1079DL and 86-WOPT-1080DL\*\* were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration		RPD
	86-WOPT-571	86-WOPT-572	
Chloride	48700 ug/L	48100 ug/L	1
Nitrate	2620 ug/L	2550 ug/L	3
Sulfate	583000 ug/L	570000 ug/L	2
Bicarbonate	328 mg/L	331 mg/L	1

Analyte	Concentration (ug/L)		RPD
	86-WOPT-571DL	86-WOPT-572DL	
Sulfate	497000	485000	2

Analyte	Concentration		RPD
	86-WOPT-1079	86-WOPT-1080**	
Chloride	41890 ug/L	41900 ug/L	0
Nitrate	8190 ug/L	8700 ug/L	6
Sulfate	370000 ug/L	370000 ug/L	0
Bicarbonate	376 mg/L	308 mg/L	2



Analyte	Concentration (ug/L)		RPD
	86-WOPT-1079DL	86-WOPT-1080DL**	
Sulfate	648000	307000	71

#### X. Field Blanks

Sample 86-WOPT-1090 was identified as an equipment rinsate. No contaminant concentrations were found in this blank with the following exceptions:

Equipment Rinsate ID	Analyte	Concentration (mg/L)
86-WOPT-1090	Total organic carbon	0.05

Moffett Air Field, Building 88, CTO 86  
Wet Chemistry - Data Qualification Summary - SDG 47189/K2502914

SDG	Sample	Analyte	Flag	A or P	Reason
47189/ K2502914	66-WOPT-570 66-WOPT-571 66-WOPT-572 66-WOPT-573** 66-WOPT-574 66-WOPT-1080** 66-WOPT-575 66-WOPT-1079 66-WOPT-1083	Nitrate  Nitrite	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	P	Technical holding times
47189/ K2502914	66-WOPT-1090	Total organic carbon	J (all detects) UJ (all non-detects)	P	Calibration (%R)
47189/ K2502914	66-WOPT-570 66-WOPT-570DL 66-WOPT-571 66-WOPT-571OL 66-WOPT-572 66-WOPT-572DL 66-WOPT-573** 66-WOPT-573DL** 66-WOPT-574 66-WOPT-574DL 66-WOPT-575 66-WOPT-575DL 66-WOPT-1077** 66-WOPT-1077DL** 66-WOPT-1079 66-WOPT-1079DL 66-WOPT-1080** 66-WOPT-1080DL** 66-WOPT-1082 66-WOPT-1082DL 66-WOPT-1083 66-WOPT-1083DL	Sulfate	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicates (%R)
47189/ K2502914	66-WOPT-570 66-WOPT-571 66-WOPT-572 66-WOPT-573** 66-WOPT-574 66-WOPT-575 66-WOPT-1077** 66-WOPT-1079 66-WOPT-1079DL 66-WOPT-1080** 66-WOPT-1082 66-WOPT-1083	Sulfate	J (all detects)	A	Sample result verification

Moffett Air Field, Building 88, CTO 86  
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG  
47189/K2502914

No Sample Data Qualified in this SDG



**TETRA TECH**  
12345 Main St.  
San Diego, CA 92101 (619) 224-2606

# CHAIN-OF-CUSTODY RECORD

NUMBER 10764

PROJECT NAME		PURCHASE ORDER NO.		PROJECT NO.		PROJECT CONTACT PHONE NUMBER		LABORATORY NAME		Project Information Section Do not submit to Laboratory	
BUILDING 68		055432		1990.060		6075 15-12		APZ			
PROJECT LOCATION		WOLFERT FIELD PT.		AIRBILL NUMBER				LABORATORY ID (FOR LABORATORY)			
SAMPLER NAME		LAP-24 D002						47204			
PROJECT CONTACT		LYNN JEFFERSON									
SAMPLE ID	DATE COLLECTED	TIME COLLECTED	NO OF CONTAINERS	LEVEL	T	T	T	COMMENTS	LOCATION	DEPTH	QC
				3	4	5	6			START	END
86-WOPT-576	4/24/04	0830	3	X	W	24	X		TRIP BLANK	-	13
86-WOPT-577		0835	5	X	W	24	X	X	CPT-86-15	10	15
86-WOPT-578		0840	5	X	W	24	X	X	CPT-86-15	16	15
86-WOPT-579		1000	5	X	W	24	X	X	CPT-86-15	18	15
86-WOPT-580		1030	5	X	W	24	X	X	CPT-86-15	19	15
86-WOPT-581		1115	5	X	W	24	X	X	CPT-86-15	20	15
86-WOPT-582		1115	5	X	W	24	X	X	CPT-86-15	21	15
86-WOPT-583		1130	5	X	W	24	X	X	CPT-86-15	22	15
LABORATORY INSTRUCTIONS/COMMENTS ANALYSIS = SULFIDE - CHROMIUM, NITRILE, WITABLE WITABLE = CALUM. ICDN MAGNETUM, POTASSIUM. COMPOSITE DISPOSITION WITABLE = ALUMINUM, 10 day TAT SAMPLE CONDITION UPON RECEIPT (FOR LABORATORY) TEMPERATURE: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN COOLER SEAL: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN											

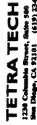
DD 41204-12



**NUMBER** 10765

White - Laboratory; Pink - Laboratory; Pink - Laboratory; Canary - Project File; Canary - Data Management

0047204-12



NUMBER 10762

SAMPLING COMMENT:  
Bldg. 88  
CAP  
Groundw

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management

0047204-12



**NUMBER** 10761

**SAMPLING COMMENT:**

Bldg. 88  
CPT  
(5-11)

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management

0047204-12

Data Validation Package  
for  
Moffett Air Field, WATS Building 88, CTO 86  
ARF 47204

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Raw Data	<u>718</u>





## Case Narrative

ARF: 47204

Project: 1990.086D WATS Bldg 88 Moffett Airfield

State Certification Number: CA1312

Results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

### Sample Receipt Information:

The sample group was received April 20, 2005, at 3.0°C and 3.0°C. The samples were assigned Analytical Request Form (ARF) number 47204. The sample numbers and requested analyses were compared to the chains of custody. The soil TOC analysis was sub-contracted to Columbia Analytical Laboratory. No exception was noted.

Sample Table

CLIENT ID	APPL ID	Matrix	Date Sampled	Date Received
86-WOPT-576	AX18207	WATER	4/20/05	4/20/05
86-WOPT-577	AX18208	WATER	4/20/05	4/20/05
86-WOPT-578	AX18209	WATER	4/20/05	4/20/05
86-WOPT-579	AX18210	WATER	4/20/05	4/20/05
86-WOPT-580	AX18211	WATER	4/20/05	4/20/05
86-WOPT-581	AX18212	WATER	4/20/05	4/20/05
86-WOPT-582	AX18213	WATER	4/20/05	4/20/05
86-WOPT-583	AX18214	SOIL	4/20/05	4/20/05
86-WOPT-584	AX18215	SOIL	4/20/05	4/20/05
86-WOPT-585	AX18216	SOIL	4/20/05	4/20/05
86-WOPT-586	AX18217	SOIL	4/20/05	4/20/05
86-WOPT-587	AX18218	SOIL	4/20/05	4/20/05
86-WOPT-588	AX18219	SOIL	4/20/05	4/20/05
86-WOPT-589	AX18220	SOIL	4/20/05	4/20/05
86-WOPT-590	AX18221	WATER	4/20/05	4/20/05
86-WOPT-1091	AX18222	WATER	4/20/05	4/20/05
86-WOPT-1092	AX18223	WATER	4/20/05	4/20/05
86-WOPT-1093	AX18224	WATER	4/20/05	4/20/05
86-WOPT-1094	AX18225	WATER	4/20/05	4/20/05
86-WOPT-1095	AX18226	WATER	4/20/05	4/20/05
86-WOPT-1096	AX18227	WATER	4/20/05	4/20/05
86-WOPT-1097	AX18228	WATER	4/20/05	4/20/05
86-WOPT-1098	AX18229	WATER	4/20/05	4/20/05
86-WOPT-1099	AX18230	SOIL	4/20/05	4/20/05
86-WOPT-1100	AX18231	SOIL	4/20/05	4/20/05
86-WOPT-1101	AX18232	SOIL	4/20/05	4/20/05
86-WOPT-1102	AX18233	SOIL	4/20/05	4/20/05

86-WOPT-1103	AX18234	SOIL	4/20/05	4/20/05
86-WOPT-1104	AX18235	SOIL	4/20/05	4/20/05
86-WOPT-1105	AX18236	WATER	4/20/05	4/20/05

# **EPA Method 8260B and CLP Volatiles Volatile Organic Analysis**

## **Sample Preparation:**

The samples were purged according to EPA method 5030B, 5035, and CLP. All holding times were met.

## **Sample Analysis Information:**

The samples were analyzed according to the method using a Hewlett Packard Gas Chromatograph with a mass spectrometer detector.

## **Quality Control/Assurance**

### **Calibrations:**

Initial and continuing calibrations were performed according to the method. For the continuing calibration verification performed on Chico file ID: 0420C02W.D, 2-Hexanone had a 28%D. For the continuing calibration verification performed on Chico file ID: 0420C21W.D, Bromomethane had a 21%D, Tetrachloroethene had a 22% $\delta$ , 2-Hexanone had a 27%D, and 4-Methyl-2-pentanone had a 22%D. All other calibration criteria were met.

### **Blanks:**

For the 050420BM method blank, Acetone was detected below the reporting limit but above the MDL at 2.8 $\mu$ g/L, Tetrachloroethene was detected below the reporting limit but above the MDL at 0.26 $\mu$ g/L, and Trichloroethene at 0.52 $\mu$ g/L. All associated results with this method blank that were less than ten times these levels were "B" flagged. For the 050420CM method blank, Acetone was detected below the reporting limit but above the MDL at 3.1 $\mu$ g/L, Tetrachloroethene was detected below the reporting limit but above the MDL at 0.21 $\mu$ g/L, and Trichloroethene was detected below the reporting limit but above the MDL at 0.30 $\mu$ g/L. All associated results with this method blank that were less than ten times these levels were "B" flagged. Acetone was not detected in the associated sample. No other target analyte was detected above the reporting limits in the method blanks.

### **Spikes:**

Laboratory Control Spikes (LCS) were used for quality assurance. A second-source standard was used for the LCS. All spike and second-source criteria were met.

Samples 86-WOPT-583 and 86-WOPT-1097 were designated by the client for MS/MSD analysis. For the MS/MSD on sample 86-WOPT-583, Trichloroethene outside of the 61-135% control limits at 292% and 50.4% with a 61.1% RPD. For the MS/MSD performed on sample 86-WOPT-1097, 1,1-Dichloroethene recovered below the 75% lower control limit at 55.0% in the MS and Trichloroethene recovered below the 71% lower control limit at -1070% and -750%.

### **Surrogates**

All surrogate recoveries were within control limits.

### **Tuning:**

The instrument was tuned using BFB. All method criteria were met.

### **Internal Standards**

The internal standard area counts were compared to the mid-point of the initial calibration according to method 8260. Sample 86-WOPT-584 recovered the Chlorobenzene-d5 and 1,4-Dichlorobenzene-d4 internal standards below the lower control limit. The sample was re-analyzed at a dilution factor of 50. All analytes associated with these two analytes are reported on the dilution analysis also. The internal standard area counts were compared to the continuing calibration according to CLP. All method criteria were met.

### **Summary:**

No additional problem was encountered.

# **EPA Methods 6010B**

## **Metals**

### **Digestion Information:**

The water was digested according to EPA methods 3010A. No exceptions were encountered. All holding times were met.

### **Analysis Information:**

#### **Samples:**

The sample was analyzed for dissolved metals according to EPA method 6010B using a Perkin Elmer Optima 4300DV.

#### **Calibrations:**

Calibrations were performed according to the methods for the initial calibration and the initial calibration verification. The initial calibration verification is prepared from a second source standard.

#### **Blanks:**

Potassium was detected below the reporting limit but above the MDL in the 050506A method blank at 0.12mg/L. Magnesium and Sodium were detected below the reporting limit but above the MDL in the 050426A method blank at 0.013mg/L and 0.29mg/L respectively. No other target metal was detected above the reporting limits in the method blank.

#### **Spikes:**

Laboratory Control Spikes (LCS/LCSD) were used for quality assurance. LCS recoveries were within acceptance limits.

Sample 86-WOPT-1097 was designated by the client for MS/MSD analysis. For the MS/MSD, Iron recovered below the 80% lower control limit at -67.0% and -34.0%, Magnesium recovered below the 80% lower control limit at 60.4% and 50.4%, and Calcium recovered above the 120% upper control limit at 144% in the MSD. All other recoveries met acceptance criteria.

### **Summary:**

No analytical exception is noted. All data are acceptable.

## **EPA Methods 300.0, 310.1 and 9060A**

### **Anions, Carbonates & Bi-carbonates and Total Organic Carbon**

#### **Sample Preparation Information:**

A Dionex DX500 ion chromatograph was used for the EPA 300.0 analysis. The TOC was analyzed using a Shimadzu TOC-5050A instrument. The samples were screened down to the MDL.

#### **Analysis Information:**

##### **Samples:**

The sample was analyzed according to the methods. A Dionex DX500 ion chromatograph was used for the EPA 300.0 analysis.

##### **Calibrations:**

Calibrations were performed according to the methods for the initial calibration and the initial calibration verification. The initial calibration verification is prepared from a second source standard.

##### **Blanks:**

No target analyte was detected above the reporting limits in the method blanks.

##### **Spikes:**

Laboratory Control Spikes (LCS/LCSD) and Sample Duplicates were used for quality assurance. All recoveries met acceptance criteria.

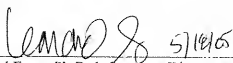
Sample 86-WOPT-1097 was designated by the client for MS/MSD analysis. For the MS/MSD, Sulfate recovered below the 80% lower control limit at 79.3% and 78.7%. All other recoveries met acceptance criteria.

#### **Summary:**

No analytical exception is noted.

## CERTIFICATION

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the hard copy has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

  
\_\_\_\_\_  
Leonard Fong, Ph.D, Laboratory Director / Date

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-576

Sample Collection Date: 4/20/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47204

APPL ID: AX18207

CCG: SC42\T-050420BN-85953

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/20/05	4/20/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/20/05	4/20/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	0.5	0.21	ug/L	4/20/05	4/20/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/20/05	4/20/05
CLP VOL	1,1-Dichloroethane	Not detected	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	1,1-Dichloroethene	Not detected	0.5	0.30	ug/L	4/20/05	4/20/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/20/05	4/20/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/20/05	4/20/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/20/05	4/20/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/20/05	4/20/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/20/05	4/20/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/20/05	4/20/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/20/05	4/20/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/20/05	4/20/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/20/05	4/20/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/20/05	4/20/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/20/05	4/20/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/20/05	4/20/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/20/05	4/20/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/20/05	4/20/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	4/20/05	4/20/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/20/05	4/20/05
CLP VOL	cis-1,2-Dichloroethene	Not detected	0.5	0.16	ug/L	4/20/05	4/20/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/20/05	4/20/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/20/05	4/20/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/20/05	4/20/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/20/05	4/20/05

Run #: 0420N23

Instrument: Neo

Sequence: N050418

Dilution Factor: 1

Initials: LF

Printed: 4/25/05 5 27 57 PM

APPL-F1-SC-MCRes/MCPQL-REG MDLs



## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

ARF: 47204

Sample ID: 86-WOPT-576

APPL ID: AX18207

Sample Collection Date: 4/20/05

QCG: \$C42VT-050420BN-85953

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	Not detected	0.5	0.15	ug/L	4/20/05	4/20/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/20/05	4/20/05
CLP VOL	trans-1,2-Dichloroethene	Not detected	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/20/05	4/20/05
CLP VOL	Trichloroethene	Not detected	0.5	0.16	ug/L	4/20/05	4/20/05
CLP VOL	Vinyl Chloride	Not detected	0.5	0.23	ug/L	4/20/05	4/20/05
CLP VOL	Surrogate Recovery (BFB)	111	75-125		%	4/20/05	4/20/05
CLP VOL	Surrogate Recovery (DCA)	99.1	62-139		%	4/20/05	4/20/05
CLP VOL	Surrogate Recovery (TOL)	114	75-125		%	4/20/05	4/20/05

Run #: 0420N23  
Instrument: Neo  
Sequence: N050418  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:27:57 PM  
APPL F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1930.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-577

Sample Collection Date: 4/20/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47204

APPL ID: AX18208

CCG: SC42VT-050420BN-85953

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/20/05	4/20/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/20/05	4/20/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	0.5	0.21	ug/L	4/20/05	4/20/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/20/05	4/20/05
CLP VOL	1,1-Dichloroethane	7.6	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	1,1-Dichloroethene	2.2	0.5	0.30	ug/L	4/20/05	4/20/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/20/05	4/20/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/20/05	4/20/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/20/05	4/20/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/20/05	4/20/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/20/05	4/20/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/20/05	4/20/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/20/05	4/20/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/20/05	4/20/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/20/05	4/20/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/20/05	4/20/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/20/05	4/20/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/20/05	4/20/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/20/05	4/20/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/20/05	4/20/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	4/20/05	4/20/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/20/05	4/20/05
CLP VOL	cis-1,2-Dichloroethene	100 E	0.5	0.16	ug/L	4/20/05	4/20/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/20/05	4/20/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/20/05	4/20/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/20/05	4/20/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/20/05	4/20/05

E = The reported value exceeds linear range.

Run #: 0420N24  
Instrument: Neo  
Sequence: N050418  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:27:57 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-577**

Sample Collection Date: 4/20/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47204

**APPL ID: AX18208**

QCG: SC42VT-050420BN-85953

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	39	0.5	0.15	ug/L	4/20/05	4/20/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/20/05	4/20/05
CLP VOL	trans-1,2-Dichloroethene	0.97	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/20/05	4/20/05
CLP VOL	Trichloroethene	33	0.5	0.16	ug/L	4/20/05	4/20/05
CLP VOL	Vinyl Chloride	6.6	0.5	0.23	ug/L	4/20/05	4/20/05
CLP VOL	Surrogate Recovery (BFB)	110	75-125		%	4/20/05	4/20/05
CLP VOL	Surrogate Recovery (DCA)	103	62-139		%	4/20/05	4/20/05
CLP VOL	Surrogate Recovery (TOL)	110	75-125		%	4/20/05	4/20/05

E = The reported value exceeds linear range.

Run #: 0420N24  
Instrument: Neo  
Sequence: N050418  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:27:57 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-577**

Sample Collection Date: 4/20/05

APPL Inc  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47204

**APPL ID: AX18208**

QCG: SC42VD-050422CN-86962

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1 2-Dichloroethene	120	2.5	0.80	ug/L	4/24/05	4/24/05
CLP VOL	Surrogate Recovery (BFB)	120	75-125		%	4/24/05	4/24/05
CLP VOL	Surrogate Recovery (DCA)	107	62-139		%	4/24/05	4/24/05
CLP VOL	Surrogate Recovery (TOL)	113	75-125		%	4/24/05	4/24/05

Run #: 0422N55

Instrument: Neo

Sequence: N050421

Dilution Factor: 5

Initials: LF

Printed: 5/18/05 1:39:48 PM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-578

Sample Collection Date: 4/20/05

APPL Inc  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47204

APPL ID: AX18209

CCG: SC42VT-050420BN-85953

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/20/05	4/20/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/20/05	4/20/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	0.5	0.21	ug/L	4/20/05	4/20/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/20/05	4/20/05
CLP VOL	1,1-Dichloroethane	72	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	1,1-Dichloroethene	160 E	0.5	0.30	ug/L	4/20/05	4/20/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/20/05	4/20/05
CLP VOL	1,2-Dichloropropane	1.5	0.5	0.17	ug/L	4/20/05	4/20/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/20/05	4/20/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/20/05	4/20/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/20/05	4/20/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/20/05	4/20/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/20/05	4/20/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/20/05	4/20/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/20/05	4/20/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/20/05	4/20/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/20/05	4/20/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/20/05	4/20/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/20/05	4/20/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/20/05	4/20/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	4/20/05	4/20/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/20/05	4/20/05
CLP VOL	cis-1,2-Dichloroethene	2000 E	0.5	0.16	ug/L	4/20/05	4/20/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/20/05	4/20/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/20/05	4/20/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/20/05	4/20/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/20/05	4/20/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0420N25

Instrument: Neo

Sequence: N050418

Dilution Factor: 1

Initials: LF

Printed: 4/25/05 5:27:57 PM

APPL F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 68 Moffett Airfield

**Sample ID: 88-WOPT-578**

Sample Collection Date: 4/20/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47204

**APPL ID: AX18209**

QCG: SC42VT-050420EN-85953

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VCL	Tetrachloroethene	0.21 B J	0.5	0.15	ug/L	4/20/05	4/20/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/20/05	4/20/05
CLP VOL	trans-1,2-Dichloroethene	18	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/20/05	4/20/05
CLP VOL	Trichloroethene	7.7	0.5	0.16	ug/L	4/20/05	4/20/05
CLP VOL	Vinyl Chloride	34	0.5	0.23	ug/L	4/20/05	4/20/05
CLP VOL	Surrogate Recovery (BFB)	107	75-125		%	4/20/05	4/20/05
CLP VOL	Surrogate Recovery (DCA)	104	62-139		%	4/20/05	4/20/05
CLP VOL	Surrogate Recovery (TOL)	112	75-125		%	4/20/05	4/20/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0420N25  
Instrument: Neo  
Sequence: N050418  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:27:57 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990 086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-578**

Sample Collection Date: 4/20/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47204

**APPL ID: AX18209**

QCG: SC42VD-050422CN-85962

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1-Dichloroethene	64	40	24.00	ug/L	4/24/05	4/24/05
CLP VOL	cis-1,2-Dichloroethene	2900	40	12.80	ug/L	4/24/05	4/24/05
CLP VOL	Surrogate Recovery (BFB)	115	75-125		%	4/24/05	4/24/05
CLP VOL	Surrogate Recovery (DCA)	111	62-139		%	4/24/05	4/24/05
CLP VOL	Surrogate Recovery (TOL)	116	75-125		%	4/24/05	4/24/05

Run #: 0422N56  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 80  
Initials: LF

Printed: 5/18/05 1:39:48 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47204

Sample ID: 86-WOPT-579

APPL ID: AX18210

Sample Collection Date: 4/20/05

QCG: SC42VT-050420BN-85953

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	0.76	0.5	0.14	ug/L	4/20/05	4/20/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/20/05	4/20/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	18	0.5	0.21	ug/L	4/20/05	4/20/05
CLP VOL	1,1,2-Trichloroethane	0.39 J	0.5	0.2	ug/L	4/20/05	4/20/05
CLP VOL	1,1-Dichloroethane	11	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	1,1-Dichloroethene	21	0.5	0.30	ug/L	4/20/05	4/20/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/20/05	4/20/05
CLP VOL	1,2-Dichloropropane	0.55	0.5	0.17	ug/L	4/20/05	4/20/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/20/05	4/20/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/20/05	4/20/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/20/05	4/20/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/20/05	4/20/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/20/05	4/20/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/20/05	4/20/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/20/05	4/20/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/20/05	4/20/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/20/05	4/20/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/20/05	4/20/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/20/05	4/20/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/20/05	4/20/05
CLP VOL	Chloroform	0.51	0.5	0.16	ug/L	4/20/05	4/20/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/20/05	4/20/05
CLP VOL	cis-1,2-Dichloroethene	300 E	0.5	0.16	ug/L	4/20/05	4/20/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/20/05	4/20/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/20/05	4/20/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/20/05	4/20/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/20/05	4/20/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

Run #: 0420N26

Instrument: Neo

Sequence: N050418

Dilution Factor: 1

Initials: LF

Printed: 4/25/05 5:27:57 PM

APPL-F1-SC-MCRes/MCPQL-REG MDLs



## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 19S0.086D WATS Bldg 88 Moffett Airfield

ARF: 47204

Sample ID: 86-WOPT-579

APPL ID: AX18210

Sample Collection Date: 4/20/05

OCG: \$C42VT-050420BN-85953

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	930 E	0.5	0.15	ug/L	4/20/05	4/20/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/20/05	4/20/05
CLP VOL	trans-1,2-Dichloroethene	1.4	0.5	0.19	ug/L	4/20/05	4/20/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/20/05	4/20/05
CLP VOL	Trichloroethene	1200 E	0.5	0.16	ug/L	4/20/05	4/20/05
CLP VOL	Vinyl Chloride	0.86	0.5	0.23	ug/L	4/20/05	4/20/05
CLP VOL	Surrogate Recovery (BFB)	106	75-125		%	4/20/05	4/20/05
CLP VOL	Surrogate Recovery (DCA)	101	62-139		%	4/20/05	4/20/05
CLP VOL	Surrogate Recovery (TOL)	105	75-125		%	4/20/05	4/20/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0420N26  
Instrument: Neo  
Sequence: N050418  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:27:58 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-579

Sample Collection Date: 4/20/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47204

APPL ID: AX18210

QCG: SC#2VD-050422CN-86952

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	290	40	12.80	ug/L	4/24/05	4/24/05
CLP VOL	Tetrachloroethene	1100	40	12.00	ug/L	4/24/05	4/24/05
CLP VOL	Trichloroethene	2000	40	12.80	ug/L	4/24/05	4/24/05
CLP VOL	Surrogate Recovery (BFB)	110	75-125		%	4/24/05	4/24/05
CLP VOL	Surrogate Recovery (DCA)	108	62-139		%	4/24/05	4/24/05
CLP VOL	Surrogate Recovery (TOL)	115	75-125		%	4/24/05	4/24/05

Run #: 0422N57  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 80  
Initials: LF

Printed: 5/18/05 1:39:48 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-580

Sample Collection Date: 4/20/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47204

APPL ID: AX18211

QCC: SC42VT-050420BN-85953

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	1.8	0.5	0.14	ug/L	4/21/05	4/21/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/21/05	4/21/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	100 E	0.5	0.21	ug/L	4/21/05	4/21/05
CLP VOL	1,1,2-Trichloroethane	0.43 J	0.5	0.2	ug/L	4/21/05	4/21/05
CLP VOL	1,1-Dichloroethane	7.8	0.5	0.19	ug/L	4/21/05	4/21/05
CLP VOL	1,1-Dichloroethene	33	0.5	0.30	ug/L	4/21/05	4/21/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/21/05	4/21/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/21/05	4/21/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/21/05	4/21/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/21/05	4/21/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/21/05	4/21/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/21/05	4/21/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/21/05	4/21/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/21/05	4/21/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/21/05	4/21/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/21/05	4/21/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/21/05	4/21/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/21/05	4/21/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/21/05	4/21/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/21/05	4/21/05
CLP VOL	Chloroform	0.36 J	0.5	0.16	ug/L	4/21/05	4/21/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/21/05	4/21/05
CLP VOL	cis-1,2-Dichloroethene	100	0.5	0.16	ug/L	4/21/05	4/21/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/21/05	4/21/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/21/05	4/21/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/21/05	4/21/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/21/05	4/21/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/21/05	4/21/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/21/05	4/21/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/21/05	4/21/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/21/05	4/21/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

Run #: 0420N27  
Instrument: Neo  
Sequence: N050418  
Dilution Factor: 1  
Initials: LF

Printed 4/25/05 5:27:58 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47204

Sample ID: 86-WOPT-580

APPL ID: AX18211

Sample Collection Date: 4/20/05

QCG: SC42VT-050420BN-85953

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	34	0.5	0.15	ug/L	4/21/05	4/21/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/21/05	4/21/05
CLP VOL	trans-1,2-Dichloroethene	1.4	0.5	0.19	ug/L	4/21/05	4/21/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/21/05	4/21/05
CLP VOL	Trichloroethene	1700 E	0.5	0.16	ug/L	4/21/05	4/21/05
CLP VOL	Vinyl Chloride	Not detected	0.5	0.23	ug/L	4/21/05	4/21/05
CLP VOL	Surrogate Recovery (BFB)	100	75-125		%	4/21/05	4/21/05
CLP VOL	Surrogate Recovery (DCA)	97.3	62-139		%	4/21/05	4/21/05
CLP VOL	Surrogate Recovery (TOL)	107	75-125		%	4/21/05	4/21/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

Run #: 0420N27  
Instrument: Neo  
Sequence: N050418  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:27:58 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-580**

Sample Collection Date: 4/20/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47204

**APPL ID: AX18211**

CCG: SC42VD-050422CN-86962

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	25	20	8.40	ug/L	4/24/05	4/24/05
CLP VOL	Trichloroethene	2500	20	6.40	ug/L	4/24/05	4/24/05
CLP VOL	Surrogate Recovery (BFB)	115	75-125		%	4/24/05	4/24/05
CLP VOL	Surrogate Recovery (DCA)	102	62-139		%	4/24/05	4/24/05
CLP VOL	Surrogate Recovery (TOL)	114	75-125		%	4/24/05	4/24/05

Run #: 0422N58  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 40  
Initials: LF

Printed: 5/18/05 1:39:48 PM  
APPL-F1-SC-MCRes/MCPOL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1340 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.066D WATS Bldg 88 Moffett Airfield

ARF: 47204

Sample ID: 86-WOPT-581

APPL ID: AX18212

Sample Collection Date: 4/20/05

CCG: SC42VT-050420BN-85953

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	1.6	0.5	0.14	ug/L	4/21/05	4/21/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/21/05	4/21/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	130 E	0.5	0.21	ug/L	4/21/05	4/21/05
CLP VOL	1,1,2-Trichloroethane	0.52	0.5	0.2	ug/L	4/21/05	4/21/05
CLP VOL	1,1-Dichloroethane	7.7	0.5	0.19	ug/L	4/21/05	4/21/05
CLP VOL	1,1-Dichloroethene	36	0.5	0.30	ug/L	4/21/05	4/21/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/21/05	4/21/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/21/05	4/21/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/21/05	4/21/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/21/05	4/21/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/21/05	4/21/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/21/05	4/21/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/21/05	4/21/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/21/05	4/21/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/21/05	4/21/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/21/05	4/21/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/21/05	4/21/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/21/05	4/21/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/21/05	4/21/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/21/05	4/21/05
CLP VOL	Chloroform	0.42 J	0.5	0.16	ug/L	4/21/05	4/21/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/21/05	4/21/05
CLP VOL	cis-1,2-Dichloroethene	91	0.5	0.16	ug/L	4/21/05	4/21/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/21/05	4/21/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/21/05	4/21/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/21/05	4/21/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/21/05	4/21/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/21/05	4/21/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/21/05	4/21/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/21/05	4/21/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/21/05	4/21/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0420N28  
Instrument: Neo  
Sequence: N050418  
Dilution Factor: 1  
Initials: LF

Printed 4/25/05 5:27:58 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1590 086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-581

Sample Collection Date: 4/23/05

APPL inc  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47204

APPL ID: AX18212

QCG: SC42VT-050420BN-85953

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	1300 E	0.5	0.15	ug/L	4/21/05	4/21/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/21/05	4/21/05
CLP VOL	trans-1,2-Dichloroethene	0.93	0.5	0.19	ug/L	4/21/05	4/21/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/21/05	4/21/05
CLP VOL	Trichloroethene	1800 E	0.5	0.16	ug/L	4/21/05	4/21/05
CLP VOL	Vinyl Chloride	0.61	0.5	0.23	ug/L	4/21/05	4/21/05
CLP VOL	Surrogate Recovery (BFB)	101	75-125		%	4/21/05	4/21/05
CLP VOL	Surrogate Recovery (DCA)	102	62-139		%	4/21/05	4/21/05
CLP VOL	Surrogate Recovery (TOL)	104	75-125		%	4/21/05	4/21/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0420N28  
Instrument: Neo  
Sequence: N050418  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:27:58 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 86 Moffett Airfield

Sample ID: 86-WOPT-581

Sample Collection Date: 4/20/05

APPL inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47204

APPL ID: AX18212

QCG: SC42VD-050424AN-86963

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	46	40	16.80	ug/L	4/24/05	4/24/05
CLP VOL	Tetrachloroethene	1100	40	12.00	ug/L	4/24/05	4/24/05
CLP VOL	Trichloroethene	3000	40	12.80	ug/L	4/24/05	4/24/05
CLP VOL	Surrogate Recovery (BFB)	107	75-125		%	4/24/05	4/24/05
CLP VOL	Surrogate Recovery (DCA)	101	62-139		%	4/24/05	4/24/05
CLP VOL	Surrogate Recovery (TOL)	103	75-125		%	4/24/05	4/24/05

Run #: 0424N06  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 80  
Initials: LF

Printed: 5/18/05 1:39:48 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990 066D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-582

Sample Collection Date: 4/20/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47204

APPL ID: AX18213

QCG: \$C42VT-050420BN-85953

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/21/05	4/21/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/21/05	4/21/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	190 E	0.5	0.21	ug/L	4/21/05	4/21/05
CLP VOL	1,1,2-Trichloroethane	1.0	0.5	0.2	ug/L	4/21/05	4/21/05
CLP VOL	1,1-Dichloroethane	6.2	0.5	0.19	ug/L	4/21/05	4/21/05
CLP VOL	1,1-Dichloroethene	35	0.5	0.30	ug/L	4/21/05	4/21/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/21/05	4/21/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/21/05	4/21/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/21/05	4/21/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/21/05	4/21/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/21/05	4/21/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/21/05	4/21/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/21/05	4/21/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/21/05	4/21/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/21/05	4/21/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/21/05	4/21/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/21/05	4/21/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/21/05	4/21/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/21/05	4/21/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/21/05	4/21/05
CLP VOL	Chloroform	1.4	0.5	0.16	ug/L	4/21/05	4/21/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/21/05	4/21/05
CLP VOL	cis-1,2-Dichloroethene	33	0.5	0.16	ug/L	4/21/05	4/21/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/21/05	4/21/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/21/05	4/21/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/21/05	4/21/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/21/05	4/21/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/21/05	4/21/05
CLP VOL	Methylene Chloride	0.69	0.5	0.35	ug/L	4/21/05	4/21/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/21/05	4/21/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/21/05	4/21/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0420N29  
Instrument: Neo  
Sequence: N050418  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:27:58 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-582

Sample Collection Date: 4/20/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47204

APPL ID: AX18213

QCG: SC42VT-050420BN-85953

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	2100 E	0.5	0.15	ug/L	4/21/05	4/21/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/21/05	4/21/05
CLP VOL	trans-1,2-Dichloroethene	0.36 J	0.5	0.19	ug/L	4/21/05	4/21/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/21/05	4/21/05
CLP VOL	Trichloroethene	1600 E	0.5	0.16	ug/L	4/21/05	4/21/05
CLP VOL	Vinyl Chloride	Not detected	0.5	0.23	ug/L	4/21/05	4/21/05
CLP VOL	Surrogate Recovery (BFB)	99.7	75-125		%	4/21/05	4/21/05
CLP VOL	Surrogate Recovery (DCA)	94.9	62-139		%	4/21/05	4/21/05
CLP VOL	Surrogate Recovery (TOL)	103	75-125		%	4/21/05	4/21/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0420N29  
Instrument: Neo  
Sequence: N050418  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:27:58 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-582

Sample Collection Date: 4/20/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47204

APPL ID: AX18213

QCG: SC42VD-050424AN-86963

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	31 J	40	16.80	ug/L	4/24/05	4/24/05
CLP VOL	Tetrachloroethene	1400	40	12.00	ug/L	4/24/05	4/24/05
CLP VOL	Trichloroethene	1500	40	12.80	ug/L	4/24/05	4/24/05
CLP VOL	Surrogate Recovery (BFB)	111	75-125		%	4/24/05	4/24/05
CLP VOL	Surrogate Recovery (DCA)	99.8	62-139		%	4/24/05	4/24/05
CLP VOL	Surrogate Recovery (TOL)	101	75-125		%	4/24/05	4/24/05

J = Estimated value, below quantitation limit.

Run #: 0424N07  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 80  
Initials: LF

Printed: 5/18/05 2:19:26 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

ARF: 47204

Sample ID: 86-WOPT-583

APPL ID: AX18214

Sample Collection Date: 4/20/05

QCG: \$86TTS-050420BC-85952

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 25.7 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	7	1.1	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	7	1.7	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	7	0.65	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,1-Dichloroethane	16	7	1.5	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,1-Dichloroethene	25	7	1.1	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,2-Dichloroethane	Not detected	7	0.97	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,2-Dichloropropane	Not detected	7	0.83	ug/Kg	4/21/05	4/21/05
EPA 8260B	2-Butanone	Not detected	67	0.96	ug/Kg	4/21/05	4/21/05
EPA 8260B	2-Hexanone	Not detected	67	0.22	ug/Kg	4/21/05	4/21/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	67	1.2	ug/Kg	4/21/05	4/21/05
EPA 8260B	Acetone	Not detected	130	3.8	ug/Kg	4/21/05	4/21/05
EPA 8260B	Benzene	Not detected	7	0.85	ug/Kg	4/21/05	4/21/05
EPA 8260B	Bromodichloromethane	Not detected	7	0.93	ug/Kg	4/21/05	4/21/05
EPA 8260B	Bromoform	Not detected	7	1.1	ug/Kg	4/21/05	4/21/05
EPA 8260B	Bromomethane	Not detected	13	2.1	ug/Kg	4/21/05	4/21/05
EPA 8260B	Carbon disulfide	Not detected	7	1.4	ug/Kg	4/21/05	4/21/05
EPA 8260B	Carbon tetrachloride	Not detected	7	1.1	ug/Kg	4/21/05	4/21/05
EPA 8260B	Chlorobenzene	Not detected	7	0.66	ug/Kg	4/21/05	4/21/05
EPA 8260B	Chloroethane	Not detected	7	2.1	ug/Kg	4/21/05	4/21/05
EPA 8260B	Chloroform	Not detected	7	1.9	ug/Kg	4/21/05	4/21/05
EPA 8260B	Chloromethane	Not detected	7	2.4	ug/Kg	4/21/05	4/21/05
EPA 8260B	cis-1,2-Dichloroethene	1100 E	7	1.4	ug/Kg	4/21/05	4/21/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	7	0.63	ug/Kg	4/21/05	4/21/05
EPA 8260B	Dibromochloromethane	Not detected	7	1.1	ug/Kg	4/21/05	4/21/05
EPA 8260B	Ethylbenzene	Not detected	7	0.86	ug/Kg	4/21/05	4/21/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	7	1.2	ug/Kg	4/21/05	4/21/05
EPA 8260B	Methylene chloride	Not detected	67	6.2	ug/Kg	4/21/05	4/21/05
EPA 8260B	Styrene	Not detected	7	0.93	ug/Kg	4/21/05	4/21/05
EPA 8260B	Tetrachloroethene	42	7	0.73	ug/Kg	4/21/05	4/21/05
EPA 8260B	Toluene	Not detected	7	0.87	ug/Kg	4/21/05	4/21/05
EPA 8260B	trans-1,2-Dichloroethene	6.1 J	7	1.8	ug/Kg	4/21/05	4/21/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0420C25  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:27:58 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deare Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47204

Sample ID: 86-WOPT-583

APPL ID: AX18214

Sample Collection Date: 4/20/05

QCG: \$86TTS-050420BC-85952

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	7	0.58	ug/Kg	4/21/05	4/21/05
EPA 8260B	Trichloroethene	120	7	0.96	ug/Kg	4/21/05	4/21/05
EPA 8260B	Vinyl Acetate	Not detected	67	1.3	ug/Kg	4/21/05	4/21/05
EPA 8260B	Vinyl chloride	6.3 J	7	2.3	ug/Kg	4/21/05	4/21/05
EPA 8260B	Xylenes	Not detected	20	0.92	ug/Kg	4/21/05	4/21/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	106	52-149		%	4/21/05	4/21/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	99.4	65-135		%	4/21/05	4/21/05
EPA 8260B	Surrogate recovery: Toluene-d8	88.7	65-135		%	4/21/05	4/21/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0420C25  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:27:58 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-583

Sample Collection Date: 4/20/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47204

APPL ID: AX18214

QCG: \$86TTD-050424AM-86925

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 25.7 Percent Moisture.)							
EPA 8260B-	cis-1,2-Dichloroethene	1000	34	11	ug/Kg	4/25/05	4/25/05
EPA 8260B-	Surrogate recovery: 1,2-Dichloroethane	101	52-149		%	4/25/05	4/25/05
EPA 8260B-	Surrogate recovery: 4-Bromofluorobenz	103	65-135		%	4/25/05	4/25/05
EPA 8260B-	Surrogate recovery: Toluene-d8	105	65-135		%	4/25/05	4/25/05

Run #: 0424M14  
Instrument: Max  
Sequence: M050422  
Dilution Factor: 50  
Initials: LF

Printed: 5/18/05 1:39:48 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47204

Sample ID: 86-WOPT-584

APPL ID: AX13215

Sample Collection Date: 4/20/05

CCG: S86TTS-050420AC-85951

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 20.1 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	1.0	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.6	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.60	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,1-Dichloroethane	40	6	1.4	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,1-Dichloroethene	120	6	0.99	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.90	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.78	ug/Kg	4/21/05	4/21/05
EPA 8260B	2-Butanone	Not detected	63	0.89	ug/Kg	4/21/05	4/21/05
EPA 8260B	2-Hexanone	Not detected	63	0.20	ug/Kg	4/21/05	4/21/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	63	1.2	ug/Kg	4/21/05	4/21/05
EPA 8260B	Acetone	7.5 J	130	3.5	ug/Kg	4/21/05	4/21/05
EPA 8260B	Benzene	Not detected	6	0.79	ug/Kg	4/21/05	4/21/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.86	ug/Kg	4/21/05	4/21/05
EPA 8260B	Bromoform	Not detected	6	1.0	ug/Kg	4/21/05	4/21/05
EPA 8260B	Bromomethane	Not detected	13	2.0	ug/Kg	4/21/05	4/21/05
EPA 8260B	Carbon disulfide	Not detected	6	1.4	ug/Kg	4/21/05	4/21/05
EPA 8260B	Carbon tetrachloride	Not detected	6	1.0	ug/Kg	4/21/05	4/21/05
EPA 8260B	Chlorobenzene	Not detected	6	0.61	ug/Kg	4/21/05	4/21/05
EPA 8260B	Chloroethane	Not detected	6	1.9	ug/Kg	4/21/05	4/21/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	4/21/05	4/21/05
EPA 8260B	Chloromethane	Not detected	6	2.3	ug/Kg	4/21/05	4/21/05
EPA 8260B	cis-1,2-Dichloroethene	3600 E	6	1.3	ug/Kg	4/21/05	4/21/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.59	ug/Kg	4/21/05	4/21/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.1	ug/Kg	4/21/05	4/21/05
EPA 8260B	Ethylbenzene	Not detected	6	0.80	ug/Kg	4/21/05	4/21/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/21/05	4/21/05
EPA 8260B	Methylene chloride	Not detected	63	5.7	ug/Kg	4/21/05	4/21/05
EPA 8260B	Styrene	Not detected	6	0.86	ug/Kg	4/21/05	4/21/05
EPA 8260B	Tetrachloroethene	0.68 J	6	0.68	ug/Kg	4/21/05	4/21/05
EPA 8260B	Toluene	Not detected	6	0.81	ug/Kg	4/21/05	4/21/05
EPA 8260B	trans-1,2-Dichloroethene	18	6	1.7	ug/Kg	4/21/05	4/21/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0420C18  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:27:58 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-584

Sample Collection Date: 4/20/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47204

APPL ID: AX18215

QCG: S96TTS-050420AC-85951

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.54	ug/Kg	4/21/05	4/21/05
EPA 8260B	Trichloroethene	28	6	0.89	ug/Kg	4/21/05	4/21/05
EPA 8260B	Vinyl Acetate	Not detected	63	1.3	ug/Kg	4/21/05	4/21/05
EPA 8260B	Vinyl chloride	9.0	6	2.1	ug/Kg	4/21/05	4/21/05
EPA 8260B	Xylenes	Not detected	19	0.85	ug/Kg	4/21/05	4/21/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	127	52-149		%	4/21/05	4/21/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	83.6	65-135		%	4/21/05	4/21/05
EPA 8260B	Surrogate recovery: Toluene-d8	109	65-135		%	4/21/05	4/21/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0420C18  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed 4/25/05 5:27:58 PM  
APPL F1-SC-MCRes/MCPQL-REG MDLs



# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 83 Moffett Airfield

Sample ID: 86-WOPT-584

Sample Collection Date: 4/20/05

ARF: 47204

APPL ID: AX18215

QCG: \$86TTD-050424AM-86925

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 20.1 Percent Moisture.)							
EPA 8260B-	1,1,2,2-Tetrachloroethane	Not detected	31	17	ug/Kg	4/25/05	4/25/05
EPA 8260B-	2-Hexanone	Not detected	310	58	ug/Kg	4/25/05	4/25/05
EPA 8260B-	4-Methyl-2-pentanone	Not detected	310	120	ug/Kg	4/25/05	4/25/05
EPA 8260B-	Bromoform	Not detected	31	8.8	ug/Kg	4/25/05	4/25/05
EPA 8260B-	Chlorobenzene	Not detected	31	13	ug/Kg	4/25/05	4/25/05
EPA 8260B-	cis-1,2-Dichloroethene	2900	31	10	ug/Kg	4/25/05	4/25/05
EPA 8260B-	Dibromochloromethane	Not detected	31	12	ug/Kg	4/25/05	4/25/05
EPA 8260B-	Ethylbenzene	Not detected	31	14	ug/Kg	4/25/05	4/25/05
EPA 8260B-	Styrene	Not detected	31	16	ug/Kg	4/25/05	4/25/05
EPA 8260B-	Tetrachloroethene	10.0 J	31	9.4	ug/Kg	4/25/05	4/25/05
EPA 8260B-	Xylenes	Not detected	94	12	ug/Kg	4/25/05	4/25/05
EPA 8260B-	Surrogate recovery: 1,2-Dichloroethane	112	52-149		%	4/25/05	4/25/05
EPA 8260B-	Surrogate recovery: 4-Bromofluorobenz	114	65-135		%	4/25/05	4/25/05
EPA 8260B-	Surrogate recovery: Toluene-d8	116	65-135		%	4/25/05	4/25/05

J = Estimated value, below quantitation limit.

Run #: 0424M15

Instrument: Max

Sequence: M050422

Dilution Factor: 50

Initials: LF

Printed: 5/18/05 3:59:55 PM

APPL-F1-SC-MCRes\MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF. 47204

Sample ID: 86-WOPT-585

APPL ID: AX18216

Sample Collection Date: 4/20/05

OCG: \$86TTS-050420AC-85951

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 24.2 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	7	1.1	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	7	1.6	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	7	0.63	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,1-Dichloroethane	2.5 J	7	1.5	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,1-Dichloroethene	13	7	1.0	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,2-Dichloroethane	Not detected	7	0.95	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,2-Dichloropropane	Not detected	7	0.82	ug/Kg	4/21/05	4/21/05
EPA 8260B	2-Butanone	Not detected	66	0.94	ug/Kg	4/21/05	4/21/05
EPA 8260B	2-Hexanone	Not detected	66	0.21	ug/Kg	4/21/05	4/21/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	66	1.2	ug/Kg	4/21/05	4/21/05
EPA 8260B	Acetone	Not detected	130	3.7	ug/Kg	4/21/05	4/21/05
EPA 8260B	Benzene	Not detected	7	0.83	ug/Kg	4/21/05	4/21/05
EPA 8260B	Bromodichloromethane	Not detected	7	0.91	ug/Kg	4/21/05	4/21/05
EPA 8260B	Bromoform	Not detected	7	1.1	ug/Kg	4/21/05	4/21/05
EPA 8260B	Bromomethane	Not detected	13	2.1	ug/Kg	4/21/05	4/21/05
EPA 8260B	Carbon disulfide	Not detected	7	1.4	ug/Kg	4/21/05	4/21/05
EPA 8260B	Carbon tetrachloride	Not detected	7	1.1	ug/Kg	4/21/05	4/21/05
EPA 8260B	Chlorobenzene	Not detected	7	0.65	ug/Kg	4/21/05	4/21/05
EPA 8260B	Chloroethane	Not detected	7	2.0	ug/Kg	4/21/05	4/21/05
EPA 8260B	Chloroform	Not detected	7	1.9	ug/Kg	4/21/05	4/21/05
EPA 8260B	Chloromethane	Not detected	7	2.4	ug/Kg	4/21/05	4/21/05
EPA 8260B	cis-1,2-Dichloroethene	1200 E	7	1.4	ug/Kg	4/21/05	4/21/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	7	0.62	ug/Kg	4/21/05	4/21/05
EPA 8260B	Dibromochloromethane	Not detected	7	1.1	ug/Kg	4/21/05	4/21/05
EPA 8260B	Ethylbenzene	Not detected	7	0.84	ug/Kg	4/21/05	4/21/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	7	1.2	ug/Kg	4/21/05	4/21/05
EPA 8260B	Methylene chloride	Not detected	66	6.0	ug/Kg	4/21/05	4/21/05
EPA 8260B	Styrene	Not detected	7	0.91	ug/Kg	4/21/05	4/21/05
EPA 8260B	Tetrachloroethene	1.1 J	7	0.71	ug/Kg	4/21/05	4/21/05
EPA 8260B	Toluene	Not detected	7	0.86	ug/Kg	4/21/05	4/21/05
EPA 8260B	trans-1,2-Dichloroethene	3.8 J	7	1.8	ug/Kg	4/21/05	4/21/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0420C17  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:27:58 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-585

Sample Collection Date: 4/20/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47204

APPL ID: AX18216

QCG: \$86TTS-050420AC-85951

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	7	0.57	ug/Kg	4/21/05	4/21/05
EPA 8260B	Trichloroethene	10	7	0.94	ug/Kg	4/21/05	4/21/05
EPA 8260B	Vinyl Acetate	Not detected	66	1.3	ug/Kg	4/21/05	4/21/05
EPA 8260B	Vinyl chloride	Not detected	7	2.2	ug/Kg	4/21/05	4/21/05
EPA 8260B	Xylenes	Not detected	20	0.90	ug/Kg	4/21/05	4/21/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	125	52-149		%	4/21/05	4/21/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	104	65-135		%	4/21/05	4/21/05
EPA 8260B	Surrogate recovery: Toluene-d8	93.4	65-135		%	4/21/05	4/21/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0420C17  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:27:58 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-585

Sample Collection Date: 4/20/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47204

APPL ID: AX18216

QCG: \$86TTD-050424AM-86925

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 24.2 Percent Moisture.)							
EPA 8260B-	cis-1,2-Dichloroethene	1200	33	11	ug/Kg	4/25/05	4/25/05
EPA 8260B-	Surrogate recovery: 1,2-Dichloroethane	111	52-149		%	4/25/05	4/25/05
EPA 8260B-	Surrogate recovery: 4-Bromofluorobenz	112	65-135		%	4/25/05	4/25/05
EPA 8260B-	Surrogate recovery: Toluene-d8	115	65-135		%	4/25/05	4/25/05

Run #: 0424M16  
Instrument: Max  
Sequence: M050422  
Dilution Factor: 50  
Initials: LF

Printed: 5/18/05 1:39:48 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47204

Sample ID: 86-WOPT-586

APPL ID: AX18217

Sample Collection Date: 4/20/05

QCG: \$86TTS-050420AC-85951

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 19.6 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	1.0	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.5	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.60	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,1-Dichloroethane	2.3 J	6	1.4	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,1-Dichloroethene	7.5	6	0.98	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.90	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.77	ug/Kg	4/21/05	4/21/05
EPA 8260B	2-Butanone	Not detected	62	0.88	ug/Kg	4/21/05	4/21/05
EPA 8260B	2-Hexanone	Not detected	62	0.20	ug/Kg	4/21/05	4/21/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	62	1.2	ug/Kg	4/21/05	4/21/05
EPA 8260B	Acetone	Not detected	120	3.5	ug/Kg	4/21/05	4/21/05
EPA 8260B	Benzene	Not detected	6	0.78	ug/Kg	4/21/05	4/21/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.86	ug/Kg	4/21/05	4/21/05
EPA 8260B	Bromoform	Not detected	6	1.0	ug/Kg	4/21/05	4/21/05
EPA 8260B	Bromomethane	Not detected	12	2.0	ug/Kg	4/21/05	4/21/05
EPA 8260B	Carbon disulfide	Not detected	6	1.3	ug/Kg	4/21/05	4/21/05
EPA 8260B	Carbon tetrachloride	Not detected	6	1.0	ug/Kg	4/21/05	4/21/05
EPA 8260B	Chlorobenzene	Not detected	6	0.61	ug/Kg	4/21/05	4/21/05
EPA 8260B	Chloroethane	Not detected	6	1.9	ug/Kg	4/21/05	4/21/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	4/21/05	4/21/05
EPA 8260B	Chloromethane	Not detected	6	2.3	ug/Kg	4/21/05	4/21/05
EPA 8260B	cis-1,2-Dichloroethene	100	6	1.3	ug/Kg	4/21/05	4/21/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.58	ug/Kg	4/21/05	4/21/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.1	ug/Kg	4/21/05	4/21/05
EPA 8260B	Ethylbenzene	Not detected	6	0.80	ug/Kg	4/21/05	4/21/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/21/05	4/21/05
EPA 8260B	Methylene chloride	Not detected	62	5.7	ug/Kg	4/21/05	4/21/05
EPA 8260B	Styrene	Not detected	6	0.86	ug/Kg	4/21/05	4/21/05
EPA 8260B	Tetrachloroethene	300	6	0.67	ug/Kg	4/21/05	4/21/05
EPA 8260B	Toluene	Not detected	6	0.81	ug/Kg	4/21/05	4/21/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.7	ug/Kg	4/21/05	4/21/05

J = Estimated value, below quantitation limit.

Run #: 0420C16  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:27:58 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47204

Sample ID: 86-WOPT-586

APPL ID: AX18217

Sample Collection Date: 4/20/05

QCG: \$86TTS-050420AC-85951

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.53	ug/Kg	4/21/05	4/21/05
EPA 8260B	Trichloroethene	640	6	0.88	ug/Kg	4/21/05	4/21/05
EPA 8260B	Vinyl Acetate	Not detected	62	1.2	ug/Kg	4/21/05	4/21/05
EPA 8260B	Vinyl chloride	Not detected	6	2.1	ug/Kg	4/21/05	4/21/05
EPA 8260B	Xylenes	Not detected	19	0.85	ug/Kg	4/21/05	4/21/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	125	52-149		%	4/21/05	4/21/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	109	65-135		%	4/21/05	4/21/05
EPA 8260B	Surrogate recovery: Toluene-d8	102	65-135		%	4/21/05	4/21/05

J = Estimated value, below quantitation limit.

Run #: 0420C16  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:27:58 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8250B

Tetra Tech F.W., Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

ARF: 47204

Sample ID: 86-WOPT-587

APPL ID: AX18218

Sample Collection Date: 4/20/05

QCG: \$86TTS-050420AC-85951

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 17.0 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	0.98	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.5	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.58	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,1-Dichloroethane	Not detected	6	1.4	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,1-Dichloroethene	2.7 J	6	0.95	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.87	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.75	ug/Kg	4/21/05	4/21/05
EPA 8260B	2-Butanone	Not detected	60	0.86	ug/Kg	4/21/05	4/21/05
EPA 8260B	2-Hexanone	Not detected	60	0.19	ug/Kg	4/21/05	4/21/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	60	1.1	ug/Kg	4/21/05	4/21/05
EPA 8260B	Acetone	Not detected	120	3.4	ug/Kg	4/21/05	4/21/05
EPA 8260B	Benzene	Not detected	6	0.76	ug/Kg	4/21/05	4/21/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.83	ug/Kg	4/21/05	4/21/05
EPA 8260B	Bromoform	Not detected	6	0.96	ug/Kg	4/21/05	4/21/05
EPA 8260B	Bromomethane	Not detected	12	1.9	ug/Kg	4/21/05	4/21/05
EPA 8260B	Carbon disulfide	Not detected	6	1.3	ug/Kg	4/21/05	4/21/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.96	ug/Kg	4/21/05	4/21/05
EPA 8260B	Chlorobenzene	Not detected	6	0.59	ug/Kg	4/21/05	4/21/05
EPA 8260B	Chloroethane	Not detected	6	1.9	ug/Kg	4/21/05	4/21/05
EPA 8260B	Chloroform	Not detected	6	1.7	ug/Kg	4/21/05	4/21/05
EPA 8260B	Chloromethane	Not detected	6	2.2	ug/Kg	4/21/05	4/21/05
EPA 8260B	cis-1,2-Dichloroethene	8.0	6	1.3	ug/Kg	4/21/05	4/21/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.57	ug/Kg	4/21/05	4/21/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.0	ug/Kg	4/21/05	4/21/05
EPA 8260B	Ethylbenzene	Not detected	6	0.77	ug/Kg	4/21/05	4/21/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/21/05	4/21/05
EPA 8260B	Methylene chloride	Not detected	60	5.5	ug/Kg	4/21/05	4/21/05
EPA 8260B	Styrene	Not detected	6	0.83	ug/Kg	4/21/05	4/21/05
EPA 8260B	Tetrachloroethane	12	6	0.65	ug/Kg	4/21/05	4/21/05
EPA 8260B	Toluene	Not detected	6	0.78	ug/Kg	4/21/05	4/21/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.6	ug/Kg	4/21/05	4/21/05

J = Estimated value, below quantitation limit.

Run #: 0420C15  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:27:58 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47204

Sample ID: 86-WOPT-587

APPL ID: AX18218

Sample Collection Date: 4/20/05

QCG: \$86TTS-050420AC-85951

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.52	ug/Kg	4/21/05	4/21/05
EPA 8260B	Trichloroethene	510	6	0.86	ug/Kg	4/21/05	4/21/05
EPA 8260B	Vinyl Acetate	Not detected	60	1.2	ug/Kg	4/21/05	4/21/05
EPA 8260B	Vinyl chloride	Not detected	6	2.0	ug/Kg	4/21/05	4/21/05
EPA 8260B	Xylenes	Not detected	18	0.82	ug/Kg	4/21/05	4/21/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	126	52-149		%	4/21/05	4/21/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	101	65-135		%	4/21/05	4/21/05
EPA 8260B	Surrogate recovery: Toluene-d8	94.7	65-135		%	4/21/05	4/21/05

J = Estimated value, below quantitation limit

Run #: 0420C15  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed 4/25/05 5:27:58 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-588

Sample Collection Date: 4/20/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47204

APPL ID: AX18219

CCG: \$86TTS-050420AC-85951

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 14.4 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	0.95	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.4	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.56	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,1-Dichloroethane	Not detected	6	1.3	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,1-Dichloroethene	3.5 J	6	0.92	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.84	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.72	ug/Kg	4/21/05	4/21/05
EPA 8260B	2-Butanone	Not detected	58	0.83	ug/Kg	4/21/05	4/21/05
EPA 8260B	2-Hexanone	Not detected	58	0.19	ug/Kg	4/21/05	4/21/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	58	1.1	ug/Kg	4/21/05	4/21/05
EPA 8260B	Acetone	Not detected	120	3.3	ug/Kg	4/21/05	4/21/05
EPA 8260B	Benzene	Not detected	6	0.74	ug/Kg	4/21/05	4/21/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.81	ug/Kg	4/21/05	4/21/05
EPA 8260B	Bromoform	Not detected	6	0.93	ug/Kg	4/21/05	4/21/05
EPA 8260B	Bromomethane	Not detected	12	1.9	ug/Kg	4/21/05	4/21/05
EPA 8260B	Carbon disulfide	Not detected	6	1.3	ug/Kg	4/21/05	4/21/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.93	ug/Kg	4/21/05	4/21/05
EPA 8260B	Chlorobenzene	Not detected	6	0.57	ug/Kg	4/21/05	4/21/05
EPA 8260B	Chloroethane	Not detected	6	1.8	ug/Kg	4/21/05	4/21/05
EPA 8260B	Chloroform	Not detected	6	1.7	ug/Kg	4/21/05	4/21/05
EPA 8260B	Chloromethane	Not detected	6	2.1	ug/Kg	4/21/05	4/21/05
EPA 8260B	cis-1,2-Dichloroethene	14	6	1.2	ug/Kg	4/21/05	4/21/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.55	ug/Kg	4/21/05	4/21/05
EPA 8260B	Dibromochloromethane	Not detected	6	0.99	ug/Kg	4/21/05	4/21/05
EPA 8260B	Ethylbenzene	Not detected	6	0.75	ug/Kg	4/21/05	4/21/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.0	ug/Kg	4/21/05	4/21/05
EPA 8260B	Methylene chloride	Not detected	58	5.3	ug/Kg	4/21/05	4/21/05
EPA 8260B	Styrene	Not detected	6	0.81	ug/Kg	4/21/05	4/21/05
EPA 8260B	Tetrachloroethene	9.5	6	0.63	ug/Kg	4/21/05	4/21/05
EPA 8260B	Toluene	Not detected	6	0.76	ug/Kg	4/21/05	4/21/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.6	ug/Kg	4/21/05	4/21/05

J = Estimated value, below quantitation limit.

Run #: 0420C14  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed 4/25/05 5:27 58 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-588

Sample Collection Date: 4/20/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47204

APPL ID: AX18219

QCG: \$86TTS-050420AC-85951

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.50	ug/Kg	4/21/05	4/21/05
EPA 8260B	Trichloroethene	540	6	0.83	ug/Kg	4/21/05	4/21/05
EPA 8260B	Vinyl Acetate	Not detected	58	1.2	ug/Kg	4/21/05	4/21/05
EPA 8260B	Vinyl chloride	Not detected	6	2.0	ug/Kg	4/21/05	4/21/05
EPA 8260B	Xylenes	Not detected	18	0.79	ug/Kg	4/21/05	4/21/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	116	52-149		%	4/21/05	4/21/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	99.8	65-135		%	4/21/05	4/21/05
EPA 8260B	Surrogate recovery: Toluene-d8	96.7	65-135		%	4/21/05	4/21/05

J = Estimated value, below quantitation limit.

Run #: 0420C14  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed 4/25/05 5:27:58 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47204

Sample ID: 86-WOPT-589

APPL ID: AX18220

Sample Collection Date: 4/20/05

CCG: \$86TTS-050420AC-85951

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 12.8 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	0.93	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.4	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.55	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,1-Dichloroethane	Not detected	6	1.3	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,1-Dichloroethene	3.4 J	6	0.91	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.83	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.71	ug/Kg	4/21/05	4/21/05
EPA 8260B	2-Butanone	Not detected	57	0.81	ug/Kg	4/21/05	4/21/05
EPA 8260B	2-Hexanone	Not detected	57	0.18	ug/Kg	4/21/05	4/21/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	57	1.1	ug/Kg	4/21/05	4/21/05
EPA 8260B	Acetone	Not detected	110	3.2	ug/Kg	4/21/05	4/21/05
EPA 8260B	Benzene	Not detected	6	0.72	ug/Kg	4/21/05	4/21/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.79	ug/Kg	4/21/05	4/21/05
EPA 8260B	Bromoform	Not detected	6	0.92	ug/Kg	4/21/05	4/21/05
EPA 8260B	Bromomethane	Not detected	11	1.8	ug/Kg	4/21/05	4/21/05
EPA 8260B	Carbon disulfide	Not detected	6	1.2	ug/Kg	4/21/05	4/21/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.92	ug/Kg	4/21/05	4/21/05
EPA 8260B	Chlorobenzene	Not detected	6	0.56	ug/Kg	4/21/05	4/21/05
EPA 8260B	Chloroethane	Not detected	6	1.8	ug/Kg	4/21/05	4/21/05
EPA 8260B	Chloroform	Not detected	6	1.6	ug/Kg	4/21/05	4/21/05
EPA 8260B	Chloromethane	Not detected	6	2.1	ug/Kg	4/21/05	4/21/05
EPA 8260B	cis-1,2-Dichloroethene	13	6	1.2	ug/Kg	4/21/05	4/21/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.54	ug/Kg	4/21/05	4/21/05
EPA 8260B	Dibromochloromethane	Not detected	6	0.97	ug/Kg	4/21/05	4/21/05
EPA 8260B	Ethylbenzene	Not detected	6	0.73	ug/Kg	4/21/05	4/21/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.0	ug/Kg	4/21/05	4/21/05
EPA 8260B	Methylene chloride	Not detected	57	5.2	ug/Kg	4/21/05	4/21/05
EPA 8260B	Styrene	Not detected	6	0.79	ug/Kg	4/21/05	4/21/05
EPA 8260B	Tetrachloroethene	81	6	0.62	ug/Kg	4/21/05	4/21/05
EPA 8260B	Toluene	Not detected	6	0.75	ug/Kg	4/21/05	4/21/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.6	ug/Kg	4/21/05	4/21/05

J = Estimated value, below quantitation limit.

Run #: 0420C13  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:27:58 PM  
APPL-F1-SC-MCRes\MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-589

Sample Collection Date: 4/20/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47204

APPL ID: AX18220

QCG: S86TTS-050420AC-85951

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.49	ug/Kg	4/21/05	4/21/05
EPA 8260B	Trichloroethene	400	6	0.81	ug/Kg	4/21/05	4/21/05
EPA 8260B	Vinyl Acetate	Not detected	57	1.1	ug/Kg	4/21/05	4/21/05
EPA 8260B	Vinyl chloride	Not detected	6	1.9	ug/Kg	4/21/05	4/21/05
EPA 8260B	Xylenes	Not detected	17	0.78	ug/Kg	4/21/05	4/21/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	119	52-149		%	4/21/05	4/21/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	106	65-135		%	4/21/05	4/21/05
EPA 8260B	Surrogate recovery: Toluene-d8	90.9	65-135		%	4/21/05	4/21/05

J = Estimated value, below quantitation limit.

Run #: 0420C13  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed 4/25/05 5:27:58 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47204

Sample ID: 86-WOPT-590

APPL ID: AX18221

Sample Collection Date: 4/20/05

QCG: \$86TTW-050420BS-85958

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/21/05	4/21/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/21/05	4/21/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/21/05	4/21/05
EPA 8260B	1,1-Dichloroethane	Not detected	0.5	0.19	ug/L	4/21/05	4/21/05
EPA 8260B	1,1-Dichloroethene	Not detected	0.5	0.30	ug/L	4/21/05	4/21/05
EPA 8260B	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/21/05	4/21/05
EPA 8260B	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/21/05	4/21/05
EPA 8260B	2-Butanone	Not detected	5	0.6	ug/L	4/21/05	4/21/05
EPA 8260B	2-Hexanone	Not detected	5	0.92	ug/L	4/21/05	4/21/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/21/05	4/21/05
EPA 8260B	Acetone	Not detected	5	0.95	ug/L	4/21/05	4/21/05
EPA 8260B	Benzene	Not detected	0.5	0.16	ug/L	4/21/05	4/21/05
EPA 8260B	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/21/05	4/21/05
EPA 8260B	Bromoform	Not detected	0.5	0.14	ug/L	4/21/05	4/21/05
EPA 8260B	Bromomethane	Not detected	1	0.24	ug/L	4/21/05	4/21/05
EPA 8260B	Carbon disulfide	Not detected	0.5	0.2	ug/L	4/21/05	4/21/05
EPA 8260B	Carbon tetrachloride	Not detected	0.5	0.10	ug/L	4/21/05	4/21/05
EPA 8260B	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/21/05	4/21/05
EPA 8260B	Chloroethane	Not detected	0.5	0.21	ug/L	4/21/05	4/21/05
EPA 8260B	Chloroform	0.23 J	0.5	0.16	ug/L	4/21/05	4/21/05
EPA 8260B	Chloromethane	Not detected	0.5	0.31	ug/L	4/21/05	4/21/05
EPA 8260B	cis-1,2-Dichloroethene	Not detected	0.5	0.16	ug/L	4/21/05	4/21/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/21/05	4/21/05
EPA 8260B	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/21/05	4/21/05
EPA 8260B	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/21/05	4/21/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/21/05	4/21/05
EPA 8260B	Methylene chloride	Not detected	5	0.35	ug/L	4/21/05	4/21/05
EPA 8260B	Styrene	Not detected	0.5	0.25	ug/L	4/21/05	4/21/05
EPA 8260B	Tetrachloroethene	Not detected	0.5	0.15	ug/L	4/21/05	4/21/05
EPA 8260B	Toluene	Not detected	0.5	0.17	ug/L	4/21/05	4/21/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	0.5	0.19	ug/L	4/21/05	4/21/05

J = Estimated value, below quantitation limit.

Run #: 0420S34  
Instrument: Sweetpea  
Sequence: S050420  
Dilution Factor: 1  
Initials: LF

Printed 4/25/05 5:27:58 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-590

Sample Collection Date: 4/20/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47204

APPL ID: AX18221

QCG: \$86TTW-050420BS-85958

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/21/05	4/21/05
EPA 8260B	Trichloroethene	Not detected	0.5	0.16	ug/L	4/21/05	4/21/05
EPA 8260B	Vinyl Acetate	Not detected	5	0.31	ug/L	4/21/05	4/21/05
EPA 8260B	Vinyl chloride	Not detected	0.5	0.23	ug/L	4/21/05	4/21/05
EPA 8260B	Xylenes	Not detected	1.5	0.19	ug/L	4/21/05	4/21/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	117	62-139		%	4/21/05	4/21/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	105	75-125		%	4/21/05	4/21/05
EPA 8260B	Surrogate recovery: Toluene-d8	100.0	75-125		%	4/21/05	4/21/05

J = Estimated value, below quantitation limit.

Run #: 0420S34  
Instrument: Sweetpea  
Sequence: S050420  
Dilution Factor: 1  
Initials: LF

Printed 4/25/05 5:27:58 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47204

Sample ID: 86-WOPT-1091

APPL ID: AX18222

Sample Collection Date: 4/20/05

QCG: \$C42VT-050420CN-85954

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/21/05	4/21/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/21/05	4/21/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	0.5	0.21	ug/L	4/21/05	4/21/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/21/05	4/21/05
CLP VOL	1,1-Dichloroethane	Not detected	0.5	0.19	ug/L	4/21/05	4/21/05
CLP VOL	1,1-Dichloroethene	Not detected	0.5	0.30	ug/L	4/21/05	4/21/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/21/05	4/21/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/21/05	4/21/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/21/05	4/21/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/21/05	4/21/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/21/05	4/21/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/21/05	4/21/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/21/05	4/21/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/21/05	4/21/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/21/05	4/21/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/21/05	4/21/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/21/05	4/21/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/21/05	4/21/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/21/05	4/21/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/21/05	4/21/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	4/21/05	4/21/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/21/05	4/21/05
CLP VOL	cis-1,2-Dichloroethene	Not detected	0.5	0.16	ug/L	4/21/05	4/21/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/21/05	4/21/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/21/05	4/21/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/21/05	4/21/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/21/05	4/21/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/21/05	4/21/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/21/05	4/21/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/21/05	4/21/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/21/05	4/21/05

J = Estimated value, below quantitation limit.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0420N38  
Instrument: Neo  
Sequence: N050418  
Dilution Factor: 1  
Initials: LF

Printed 4/25/05 5:27:58 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1091

Sample Collection Date: 4/20/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47204

APPL ID: AX18222

QCG: SC42VT-050420CN-85954

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	0.20 B J	0.5	0.15	ug/L	4/21/05	4/21/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/21/05	4/21/05
CLP VOL	trans-1,2-Dichloroethene	Not detected	0.5	0.19	ug/L	4/21/05	4/21/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/21/05	4/21/05
CLP VOL	Trichloroethene	0.22 B J	0.5	0.16	ug/L	4/21/05	4/21/05
CLP VOL	Vinyl Chloride	Not detected	0.5	0.23	ug/L	4/21/05	4/21/05
CLP VOL	Surrogate Recovery (BFB)	97.8	75-125		%	4/21/05	4/21/05
CLP VOL	Surrogate Recovery (DCA)	103	62-139		%	4/21/05	4/21/05
CLP VOL	Surrogate Recovery (TOL)	109	75-125		%	4/21/05	4/21/05

J = Estimated value, below quantitation limit.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0420N38  
Instrument: Neo  
Sequence: N050418  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:27:58 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47204

Sample ID: 86-WOPT-1092

APPL ID: AX18223

Sample Collection Date: 4/20/05

CCG: SC42VT-050420CN-85954

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/21/05	4/21/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/21/05	4/21/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	0.5	0.21	ug/L	4/21/05	4/21/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/21/05	4/21/05
CLP VOL	1,1-Dichloroethane	9.4	0.5	0.19	ug/L	4/21/05	4/21/05
CLP VOL	1,1-Dichloroethene	2.2	0.5	0.30	ug/L	4/21/05	4/21/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/21/05	4/21/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/21/05	4/21/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/21/05	4/21/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/21/05	4/21/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/21/05	4/21/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/21/05	4/21/05
CLP VOL	Benzene	20	0.5	0.16	ug/L	4/21/05	4/21/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/21/05	4/21/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/21/05	4/21/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/21/05	4/21/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/21/05	4/21/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/21/05	4/21/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/21/05	4/21/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/21/05	4/21/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	4/21/05	4/21/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/21/05	4/21/05
CLP VOL	cis-1,2-Dichloroethene	72	0.5	0.16	ug/L	4/21/05	4/21/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/21/05	4/21/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/21/05	4/21/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/21/05	4/21/05
CLP VOL	m,p-Xylenes	0.19 J	0.5	0.19	ug/L	4/21/05	4/21/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/21/05	4/21/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/21/05	4/21/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/21/05	4/21/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/21/05	4/21/05

J = Estimated value, below quantitation limit.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0420N39  
Instrument: Neo  
Sequence: N050418  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:27:58 PM  
APPL-F1-SC-MCRes/MCPOL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 8S Moffett Airfield

ARF: 47204

Sample ID: 86-WOPT-1092

APPL ID: AX18223

Sample Collection Date: 4/20/05

QCG: SC42VT-050420CN-85954

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	0.17 B J	0.5	0.15	ug/L	4/21/05	4/21/05
CLP VOL	Toluene	0.35 J	0.5	0.17	ug/L	4/21/05	4/21/05
CLP VOL	trans-1,2-Dichloroethene	1.7	0.5	0.19	ug/L	4/21/05	4/21/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/21/05	4/21/05
CLP VOL	Trichloroethene	1.4 B	0.5	0.16	ug/L	4/21/05	4/21/05
CLP VOL	Vinyl Chloride	62	0.5	0.23	ug/L	4/21/05	4/21/05
CLP VOL	Surrogate Recovery (BFB)	105	75-125		%	4/21/05	4/21/05
CLP VOL	Surrogate Recovery (DCA)	104	62-139		%	4/21/05	4/21/05
CLP VOL	Surrogate Recovery (TOL)	105	75-125		%	4/21/05	4/21/05

J = Estimated value, below quantitation limit.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0420N39  
Instrument: Neo  
Sequence: N050418  
Dilution Factor: 1  
Initials: LF

Printed 4/25/05 5:27:58 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1040 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47204

Sample ID: 86-WOPT-1093

APPL ID: AX18224

Sample Collection Date: 4/20/05

CCG: SC42VT-050420CN-85954

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/21/05	4/21/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/21/05	4/21/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	0.5	0.21	ug/L	4/21/05	4/21/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/21/05	4/21/05
CLP VOL	1,1-Dichloroethane	3.8	0.5	0.19	ug/L	4/21/05	4/21/05
CLP VOL	1,1-Dichloroethene	Not detected	0.5	0.30	ug/L	4/21/05	4/21/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/21/05	4/21/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/21/05	4/21/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/21/05	4/21/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/21/05	4/21/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/21/05	4/21/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/21/05	4/21/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/21/05	4/21/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/21/05	4/21/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/21/05	4/21/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/21/05	4/21/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/21/05	4/21/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/21/05	4/21/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/21/05	4/21/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/21/05	4/21/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	4/21/05	4/21/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/21/05	4/21/05
CLP VOL	cis-1,2-Dichloroethene	0.17 J	0.5	0.16	ug/L	4/21/05	4/21/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/21/05	4/21/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/21/05	4/21/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/21/05	4/21/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/21/05	4/21/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/21/05	4/21/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/21/05	4/21/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/21/05	4/21/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/21/05	4/21/05

J = Estimated value, below quantitation limit.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0420N40

Instrument: Neo

Sequence: N050418

Dilution Factor: 1

Initials: LF

Printed: 4/25/05 5:27:58 PM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1093

Sample Collection Date: 4/20/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47204

APPL ID: AX18224

QCG: SC42VT-050420CN-85954

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	0.17 B J	0.5	0.15	ug/L	4/21/05	4/21/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/21/05	4/21/05
CLP VOL	trans-1,2-Dichloroethene	Not detected	0.5	0.19	ug/L	4/21/05	4/21/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/21/05	4/21/05
CLP VOL	Trichloroethene	0.18 B J	0.5	0.16	ug/L	4/21/05	4/21/05
CLP VOL	Vinyl Chloride	Not detected	0.5	0.23	ug/L	4/21/05	4/21/05
CLP VOL	Surrogate Recovery (BFB)	97.8	75-125		%	4/21/05	4/21/05
CLP VOL	Surrogate Recovery (DCA)	106	62-139		%	4/21/05	4/21/05
CLP VOL	Surrogate Recovery (TOL)	104	75-125		%	4/21/05	4/21/05

J = Estimated value, below quantitation limit.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0420N40  
Instrument: Neo  
Sequence: N050418  
Dilution Factor: 1  
Initials: LF

Printed 4/25/05 5:27:59 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47204

Sample ID: 86-WOPT-1094

APPL ID: AX18225

Sample Collection Date: 4/20/05

QCG: SC42VT-050420CN-85954

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/21/05	4/21/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/21/05	4/21/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	0.5	0.21	ug/L	4/21/05	4/21/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/21/05	4/21/05
CLP VOL	1,1-Dichloroethane	3.2	0.5	0.19	ug/L	4/21/05	4/21/05
CLP VOL	1,1-Dichloroethene	Not detected	0.5	0.30	ug/L	4/21/05	4/21/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/21/05	4/21/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/21/05	4/21/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/21/05	4/21/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/21/05	4/21/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/21/05	4/21/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/21/05	4/21/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/21/05	4/21/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/21/05	4/21/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/21/05	4/21/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/21/05	4/21/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/21/05	4/21/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/21/05	4/21/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/21/05	4/21/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/21/05	4/21/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	4/21/05	4/21/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/21/05	4/21/05
CLP VOL	cis-1,2-Dichloroethene	Not detected	0.5	0.16	ug/L	4/21/05	4/21/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/21/05	4/21/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/21/05	4/21/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/21/05	4/21/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/21/05	4/21/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/21/05	4/21/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/21/05	4/21/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/21/05	4/21/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/21/05	4/21/05

J = Estimated value, below quantitation limit.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0420N41  
Instrument: Neo  
Sequence: N050418  
Dilution Factor: 1  
Initials: LF

Printed 4/25/05 5:27:59 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47204

Sample ID: 86-WOPT-1094

APPL ID: AX18225

Sample Collection Date: 4/20/05

QCG: SC42VT-050420CN-85954

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	Not detected	0.5	0.15	ug/L	4/21/05	4/21/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/21/05	4/21/05
CLP VOL	trans-1,2-Dichloroethene	Not detected	0.5	0.19	ug/L	4/21/05	4/21/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/21/05	4/21/05
CLP VOL	Trichloroethene	0.20 B J	0.5	0.16	ug/L	4/21/05	4/21/05
CLP VOL	Vinyl Chloride	0.46 J	0.5	0.23	ug/L	4/21/05	4/21/05
CLP VOL	Surrogate Recovery (BFB)	102	75-125		%	4/21/05	4/21/05
CLP VOL	Surrogate Recovery (DCA)	102	62-139		%	4/21/05	4/21/05
CLP VOL	Surrogate Recovery (TOL)	105	75-125		%	4/21/05	4/21/05

J = Estimated value, below quantitation limit.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0420N41  
Instrument: Neo  
Sequence: N050418  
Dilution Factor: 1  
Initials: LF

Printed: 5/18/05 2:36:30 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Blenkowski

Project: 1990.086D WATS Bldg 38 Moffett Airfield

ARF: 47204

Sample ID: 86-WOPT-1095

APPL ID: AX18226

Sample Collection Date: 4/20/05

CCG: \$C42VT-050420CN-85954

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/21/05	4/21/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/21/05	4/21/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	0.34 J	0.5	0.21	ug/L	4/21/05	4/21/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/21/05	4/21/05
CLP VOL	1,1-Dichloroethane	25	0.5	0.19	ug/L	4/21/05	4/21/05
CLP VOL	1,1-Dichloroethene	73	0.5	0.30	ug/L	4/21/05	4/21/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/21/05	4/21/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/21/05	4/21/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/21/05	4/21/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/21/05	4/21/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/21/05	4/21/05
CLP VOL	Acetone	1.9 J	5	0.95	ug/L	4/21/05	4/21/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/21/05	4/21/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/21/05	4/21/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/21/05	4/21/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/21/05	4/21/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/21/05	4/21/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/21/05	4/21/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/21/05	4/21/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/21/05	4/21/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	4/21/05	4/21/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/21/05	4/21/05
CLP VOL	cis-1,2-Dichloroethene	640 E	0.5	0.16	ug/L	4/21/05	4/21/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/21/05	4/21/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/21/05	4/21/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/21/05	4/21/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/21/05	4/21/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/21/05	4/21/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/21/05	4/21/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/21/05	4/21/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/21/05	4/21/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0420N42  
Instrument: Neo  
Sequence: N050418  
Dilution Factor: 1  
Initials: LF

Printed: 5/18/05 2:40:25 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Blóg 88 Moffett Airfield

Sample ID: 86-WOPT-1095

Sample Collection Date: 4/20/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47204

APPL ID: AX18226

QCG: \$C42VT-050420CN-85954

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	Not detected	0.5	0.15	ug/L	4/21/05	4/21/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/21/05	4/21/05
CLP VOL	trans-1,2-Dichloroethene	1.8	0.5	0.19	ug/L	4/21/05	4/21/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/21/05	4/21/05
CLP VOL	Trichloroethene	33	0.5	0.16	ug/L	4/21/05	4/21/05
CLP VOL	Vinyl Chloride	1.1	0.5	0.23	ug/L	4/21/05	4/21/05
CLP VOL	Surrogate Recovery (BFB)	105	75-125		%	4/21/05	4/21/05
CLP VOL	Surrogate Recovery (DCA)	108	62-139		%	4/21/05	4/21/05
CLP VOL	Surrogate Recovery (TOL)	111	75-125		%	4/21/05	4/21/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0420N42  
Instrument: Neo  
Sequence: N050418  
Dilution Factor: 1  
Initials: LF

Printed 5/18/05 2:40 26 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1095

Sample Collection Date: 4/20/05

APPL inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47204

APPL ID: AX18226

QCG: \$C42VD-050424AN-86963

Metnod	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	730	40	12.80	ug/L	4/24/05	4/24/05
CLP VOL	Surrogate Recovery (BFB)	111	75-125		%	4/24/05	4/24/05
CLP VOL	Surrogate Recovery (DCA)	104	62-139		%	4/24/05	4/24/05
CLP VOL	Surrogate Recovery (TOL)	101	75-125		%	4/24/05	4/24/05

Run #: 0424N09  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 80  
Initials: LF

Printed: 5/18/05 1:39:48 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47204

Sample ID: 86-WOPT-1096

APPL ID: AX18227

Sample Collection Date: 4/20/05

QCG: \$C42VT-050420CN-85954

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	0.91	0.5	0.14	ug/L	4/21/05	4/21/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/21/05	4/21/05
CLP VOL	1,1,2-Trichloro-1,2,2-Tetrafluoroethane	41	0.5	0.21	ug/L	4/21/05	4/21/05
CLP VOL	1,1,2-Trichloroethane	0.27 J	0.5	0.2	ug/L	4/21/05	4/21/05
CLP VOL	1,1-Dichloroethane	18	0.5	0.19	ug/L	4/21/05	4/21/05
CLP VOL	1,1-Dichloroethene	53	0.5	0.30	ug/L	4/21/05	4/21/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/21/05	4/21/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/21/05	4/21/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/21/05	4/21/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/21/05	4/21/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/21/05	4/21/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/21/05	4/21/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/21/05	4/21/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/21/05	4/21/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/21/05	4/21/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/21/05	4/21/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/21/05	4/21/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/21/05	4/21/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/21/05	4/21/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/21/05	4/21/05
CLP VOL	Chloroform	0.42 J	0.5	0.16	ug/L	4/21/05	4/21/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/21/05	4/21/05
CLP VOL	cis-1,2-Dichloroethene	270 E	0.5	0.16	ug/L	4/21/05	4/21/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/21/05	4/21/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/21/05	4/21/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/21/05	4/21/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/21/05	4/21/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/21/05	4/21/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/21/05	4/21/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/21/05	4/21/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/21/05	4/21/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0420N43

Instrument: Neo

Sequence: N050418

Dilution Factor: 1

Initials: LF

Printed 5/18/05 2:42:12 PM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1540 E Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.085D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1096

Sample Collection Date: 4/20/05

APPL Inc  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47204

APPL ID: AX18227

QCG: SC42VT-050420CN-85954

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	0.20 B J	0.5	0.15	ug/L	4/21/05	4/21/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/21/05	4/21/05
CLP VOL	trans-1,2-Dichloroethene	1.1	0.5	0.19	ug/L	4/21/05	4/21/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/21/05	4/21/05
CLP VOL	Trichloroethene	900 E	0.5	0.16	ug/L	4/21/05	4/21/05
CLP VOL	Vinyl Chloride	0.70	0.5	0.23	ug/L	4/21/05	4/21/05
CLP VOL	Surrogate Recovery (BFB)	98.9	75-125		%	4/21/05	4/21/05
CLP VOL	Surrogate Recovery (DCA)	102	62-139		%	4/21/05	4/21/05
CLP VOL	Surrogate Recovery (TOL)	101	75-125		%	4/21/05	4/21/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0420N43

Instrument: Neo

Sequence: N050418

Dilution Factor: 1

Initials: LF

Printed: 5/18/05 2:42:12 PM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1036

Sample Collection Date: 4/20/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47204

APPL ID: AX18227

QCG: SC42VD-050424AN-86963

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	150	20	6.40	ug/L	4/25/05	4/25/05
CLP VOL	Trichloroethene	680	20	6.40	ug/L	4/25/05	4/25/05
CLP VOL	Surrogate Recovery (BFB)	112	75-125		%	4/25/05	4/25/05
CLP VOL	Surrogate Recovery (DCA)	101	62-139		%	4/25/05	4/25/05
CLP VOL	Surrogate Recovery (TOL)	102	75-125		%	4/25/05	4/25/05

Run #: 0424N10  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 40  
Initials: LF

Printed: 5/18/05 1:39:48 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech F.W. Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

ARF: 47204

Sample ID: 86-WOPT-1097

APPL ID: AX18228

Sample Collection Date: 4/20/05

QCG: SC42VT-050420CN-85954

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	0.65	0.5	0.14	ug/L	4/21/05	4/21/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/21/05	4/21/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	25	0.5	0.21	ug/L	4/21/05	4/21/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/21/05	4/21/05
CLP VOL	1,1-Dichloroethane	8.7	0.5	0.19	ug/L	4/21/05	4/21/05
CLP VOL	1,1-Dichloroethene	31	0.5	0.30	ug/L	4/21/05	4/21/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/21/05	4/21/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/21/05	4/21/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/21/05	4/21/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/21/05	4/21/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/21/05	4/21/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/21/05	4/21/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/21/05	4/21/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/21/05	4/21/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/21/05	4/21/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/21/05	4/21/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/21/05	4/21/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/21/05	4/21/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/21/05	4/21/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/21/05	4/21/05
CLP VOL	Chloroform	0.25 J	0.5	0.16	ug/L	4/21/05	4/21/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/21/05	4/21/05
CLP VOL	cis-1,2-Dichloroethene	120 E	0.5	0.16	ug/L	4/21/05	4/21/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/21/05	4/21/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/21/05	4/21/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/21/05	4/21/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/21/05	4/21/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/21/05	4/21/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/21/05	4/21/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/21/05	4/21/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/21/05	4/21/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0420N45  
Instrument: Neo  
Sequence: N050418  
Dilution Factor: 1  
Initials: LF

Printed 4/25/05 5:27:59 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1097

Sample Collection Date: 4/20/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47204

APPL ID: AX18228

QCG: SC42VT-050420CN-85954

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	Not detected	0.5	0.15	ug/L	4/21/05	4/21/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/21/05	4/21/05
CLP VOL	trans-1,2-Dichloroethene	0.56	0.5	0.19	ug/L	4/21/05	4/21/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/21/05	4/21/05
CLP VOL	Trichloroethene	620 E	0.5	0.16	ug/L	4/21/05	4/21/05
CLP VOL	Vinyl Chloride	Not detected	0.5	0.23	ug/L	4/21/05	4/21/05
CLP VOL	Surrogate Recovery (BFB)	99.5	75-125		%	4/21/05	4/21/05
CLP VOL	Surrogate Recovery (DCA)	101	62-139		%	4/21/05	4/21/05
CLP VOL	Surrogate Recovery (TOL)	104	75-125		%	4/21/05	4/21/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0420N45  
Instrument: Neo  
Sequence: N050418  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:27:59 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Blenkowski

Project: 1990.083D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-1097**

Sample Collection Date: 4/20/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47204

**APPL ID: AX18228**

QCG: \$C42VD-050424AN-86963

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VCL	cis-1,2-Dichloroethene	92	10	3.20	ug/L	4/25/05	4/25/05
CLP VOL	Trichloroethene	550	10	3.20	ug/L	4/25/05	4/25/05
CLP VOL	Surrogate Recovery (BFB)	111	75-125		%	4/25/05	4/25/05
CLP VOL	Surrogate Recovery (DCA)	101	62-139		%	4/25/05	4/25/05
CLP VOL	Surrogate Recovery (TOL)	96.4	75-125		%	4/25/05	4/25/05

Run #: 0424N11  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 20  
Initials: LF

Printed: 5/18/05 1:39 48 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1095

Sample Collection Date: 4/20/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47204

APPL ID: AX18229

QCG: \$C42VT-050420CN-85954

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	1.1	0.5	0.14	ug/L	4/21/05	4/21/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/21/05	4/21/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	9.5	0.5	0.21	ug/L	4/21/05	4/21/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/21/05	4/21/05
CLP VOL	1,1-Dichloroethane	4.7	0.5	0.19	ug/L	4/21/05	4/21/05
CLP VOL	1,1-Dichloroethene	22	0.5	0.30	ug/L	4/21/05	4/21/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/21/05	4/21/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/21/05	4/21/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/21/05	4/21/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/21/05	4/21/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/21/05	4/21/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/21/05	4/21/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/21/05	4/21/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/21/05	4/21/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/21/05	4/21/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/21/05	4/21/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/21/05	4/21/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/21/05	4/21/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/21/05	4/21/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/21/05	4/21/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	4/21/05	4/21/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/21/05	4/21/05
CLP VOL	cis-1,2-Dichloroethene	18	0.5	0.16	ug/L	4/21/05	4/21/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/21/05	4/21/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/21/05	4/21/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/21/05	4/21/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/21/05	4/21/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/21/05	4/21/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/21/05	4/21/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/21/05	4/21/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/21/05	4/21/05

Run #: 0420N44  
Instrument: Neo  
Sequence: N050418  
Dilution Factor: 1  
Initials: LF

Printed: 5/18/05 2:46:10 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg S8 Moffett Airfield

Sample ID: 86-WOPT-1098

Sample Collection Date: 4/20/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47204

APPL ID: AX18229

QCG: SC42VT-050420CN-85954

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	Not detected	0.5	0.15	ug/L	4/21/05	4/21/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/21/05	4/21/05
CLP VOL	trans-1,2-Dichloroethene	Not detected	0.5	0.19	ug/L	4/21/05	4/21/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/21/05	4/21/05
CLP VOL	Trichloroethene	43	0.5	0.16	ug/L	4/21/05	4/21/05
CLP VOL	Vinyl Chloride	Not detected	0.5	0.23	ug/L	4/21/05	4/21/05
CLP VOL	Surrogate Recovery (BFB)	95.7	75-125		%	4/21/05	4/21/05
CLP VOL	Surrogate Recovery (DCA)	101	62-139		%	4/21/05	4/21/05
CLP VOL	Surrogate Recovery (TOL)	103	75-125		%	4/21/05	4/21/05

Run #: 0420N44  
Instrument: Neo  
Sequence: N050418  
Dilution Factor: 1  
Initials: LF

Printed 5/18/05 2:46:10 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Eldg 88 Moffett Airfield

Sample ID: 86-WOPT-1099

Sample Collection Date: 4/20/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47204

APPL ID: AX18230

QCG: S86TTS-050420AC-85951

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 20.4 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	1.0	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.6	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.60	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,1-Dichloroethane	1.7 J	6	1.4	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,1-Dichloroethene	Not detected	6	0.99	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.90	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.78	ug/Kg	4/21/05	4/21/05
EPA 8260B	2-Butanone	Not detected	63	0.89	ug/Kg	4/21/05	4/21/05
EPA 8260B	2-Hexanone	Not detected	63	0.20	ug/Kg	4/21/05	4/21/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	63	1.2	ug/Kg	4/21/05	4/21/05
EPA 8260B	Acetone	Not detected	130	3.5	ug/Kg	4/21/05	4/21/05
EPA 8260B	Benzene	0.90 J	6	0.79	ug/Kg	4/21/05	4/21/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.87	ug/Kg	4/21/05	4/21/05
EPA 8260B	Bromoform	Not detected	6	1.0	ug/Kg	4/21/05	4/21/05
EPA 8260B	Bromomethane	Not detected	13	2.0	ug/Kg	4/21/05	4/21/05
EPA 8260B	Carbon disulfide	Not detected	6	1.4	ug/Kg	4/21/05	4/21/05
EPA 8260B	Carbon tetrachloride	Not detected	6	1.0	ug/Kg	4/21/05	4/21/05
EPA 8260B	Chlorobenzene	Not detected	6	0.62	ug/Kg	4/21/05	4/21/05
EPA 8260B	Chloroethane	Not detected	6	2.0	ug/Kg	4/21/05	4/21/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	4/21/05	4/21/05
EPA 8260B	Chloromethane	Not detected	6	2.3	ug/Kg	4/21/05	4/21/05
EPA 8260B	cis-1,2-Dichloroethene	14	6	1.3	ug/Kg	4/21/05	4/21/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.59	ug/Kg	4/21/05	4/21/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.1	ug/Kg	4/21/05	4/21/05
EPA 8260B	Ethylbenzene	Not detected	6	0.80	ug/Kg	4/21/05	4/21/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/21/05	4/21/05
EPA 8260B	Methylene chloride	Not detected	63	5.8	ug/Kg	4/21/05	4/21/05
EPA 8260B	Styrene	Not detected	6	0.87	ug/Kg	4/21/05	4/21/05
EPA 8260B	Tetrachloroethene	Not detected	6	0.88	ug/Kg	4/21/05	4/21/05
EPA 8260B	Toluene	Not detected	6	0.82	ug/Kg	4/21/05	4/21/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.7	ug/Kg	4/21/05	4/21/05

J = Estimated value, below quantitation limit.

Run #: 0420C12  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:27:59 PM  
APPL-F1-SC-MCRes/MCPL-REG MDLs

## EPA 8260B

Tetia Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-1099**

Sample Collection Date: 4/20/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47204

**APPL ID: AX18230**

QCG: \$86TTS-050420AC-85951

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.54	ug/Kg	4/21/05	4/21/05
EPA 8260B	Trichloroethene	Not detected	6	0.89	ug/Kg	4/21/05	4/21/05
EPA 8260B	Vinyl Acetate	Not detected	63	1.3	ug/Kg	4/21/05	4/21/05
EPA 8260B	Vinyl chloride	14	6	2.1	ug/Kg	4/21/05	4/21/05
EPA 8260B	Xylenes	Not detected	19	0.85	ug/Kg	4/21/05	4/21/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	124	52-149		%	4/21/05	4/21/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	105	65-135		%	4/21/05	4/21/05
EPA 8260B	Surrogate recovery: Toluene-d8	92.6	65-135		%	4/21/05	4/21/05

J = Estimated value, below quantitation limit.

Run #: 0420C12  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:27 59 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47204

Sample ID: 86-WOPT-1100

APPL ID: AX18231

Sample Collection Date: 4/20/05

QCG: S86TTS-050420AC-85951

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 21.9 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	1.0	ug/Kg	4/20/05	4/20/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.6	ug/Kg	4/20/05	4/20/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.61	ug/Kg	4/20/05	4/20/05
EPA 8260B	1,1-Dichloroethane	Not detected	6	1.4	ug/Kg	4/20/05	4/20/05
EPA 8260B	1,1-Dichloroethene	Not detected	6	1.0	ug/Kg	4/20/05	4/20/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.92	ug/Kg	4/20/05	4/20/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.79	ug/Kg	4/20/05	4/20/05
EPA 8260B	2-Butanone	Not detected	64	0.91	ug/Kg	4/20/05	4/20/05
EPA 8260B	2-Hexanone	Not detected	64	0.20	ug/Kg	4/20/05	4/20/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	64	1.2	ug/Kg	4/20/05	4/20/05
EPA 8260B	Acetone	5.9 J	130	3.6	ug/Kg	4/20/05	4/20/05
EPA 8260B	Benzene	Not detected	6	0.81	ug/Kg	4/20/05	4/20/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.88	ug/Kg	4/20/05	4/20/05
EPA 8260B	Bromoform	Not detected	6	1.0	ug/Kg	4/20/05	4/20/05
EPA 8260B	Bromomethane	Not detected	13	2.0	ug/Kg	4/20/05	4/20/05
EPA 8260B	Carbon disulfide	Not detected	6	1.4	ug/Kg	4/20/05	4/20/05
EPA 8260B	Carbon tetrachloride	Not detected	6	1.0	ug/Kg	4/20/05	4/20/05
EPA 8260B	Chlorobenzene	Not detected	6	0.63	ug/Kg	4/20/05	4/20/05
EPA 8260B	Chloroethane	Not detected	6	2.0	ug/Kg	4/20/05	4/20/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	4/20/05	4/20/05
EPA 8260B	Chloromethane	Not detected	6	2.3	ug/Kg	4/20/05	4/20/05
EPA 8260B	cis-1,2-Dichloroethene	1.4 J	6	1.4	ug/Kg	4/20/05	4/20/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.60	ug/Kg	4/20/05	4/20/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.1	ug/Kg	4/20/05	4/20/05
EPA 8260B	Ethylbenzene	Not detected	6	0.82	ug/Kg	4/20/05	4/20/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/20/05	4/20/05
EPA 8260B	Methylene chloride	Not detected	64	5.9	ug/Kg	4/20/05	4/20/05
EPA 8260B	Styrene	Not detected	6	0.88	ug/Kg	4/20/05	4/20/05
EPA 8260B	Tetrachloroethene	Not detected	6	0.69	ug/Kg	4/20/05	4/20/05
EPA 8260B	Toluene	Not detected	6	0.83	ug/Kg	4/20/05	4/20/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.7	ug/Kg	4/20/05	4/20/05

J = Estimated value, below quantitation limit.

Run #: 0420C11  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:27:59 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47204

Sample ID: 86-WOPT-1100

APPL ID: AX18231

Sample Collection Date: 4/20/05

QCG: \$86TTS-050420AC-85951

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.55	ug/Kg	4/20/05	4/20/05
EPA 8260B	Trichloroethene	Not detected	6	0.91	ug/Kg	4/20/05	4/20/05
EPA 8260B	Vinyl Acetate	Not detected	64	1.3	ug/Kg	4/20/05	4/20/05
EPA 8260B	Vinyl chloride	Not detected	6	2.1	ug/Kg	4/20/05	4/20/05
EPA 8260B	Xylenes	Not detected	19	0.87	ug/Kg	4/20/05	4/20/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	126	52-149		%	4/20/05	4/20/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	104	65-135		%	4/20/05	4/20/05
EPA 8260B	Surrogate recovery: Toluene-d8	96.7	65-135		%	4/20/05	4/20/05

J = Estimated value, below quantitation limit.

Run #: 0420C11  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:27 59 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1101

Sample Collection Date: 4/20/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47204

APPL ID: AX18232

CCG: \$86TTS-050420AC-85951

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 16.2 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	0.97	ug/Kg	4/20/05	4/20/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.5	ug/Kg	4/20/05	4/20/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.57	ug/Kg	4/20/05	4/20/05
EPA 8260B	1,1-Dichloroethane	2.9 J	6	1.4	ug/Kg	4/20/05	4/20/05
EPA 8260B	1,1-Dichloroethene	6.5	6	0.94	ug/Kg	4/20/05	4/20/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.86	ug/Kg	4/20/05	4/20/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.74	ug/Kg	4/20/05	4/20/05
EPA 8260B	2-Butanone	Not detected	60	0.85	ug/Kg	4/20/05	4/20/05
EPA 8260B	2-Hexanone	Not detected	60	0.19	ug/Kg	4/20/05	4/20/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	60	1.1	ug/Kg	4/20/05	4/20/05
EPA 8260B	Acetone	5.5 J	120	3.3	ug/Kg	4/20/05	4/20/05
EPA 8260B	Benzene	Not detected	6	0.75	ug/Kg	4/20/05	4/20/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.82	ug/Kg	4/20/05	4/20/05
EPA 8260B	Bromoform	Not detected	6	0.95	ug/Kg	4/20/05	4/20/05
EPA 8260B	Bromomethane	Not detected	12	1.9	ug/Kg	4/20/05	4/20/05
EPA 8260B	Carbon disulfide	Not detected	6	1.3	ug/Kg	4/20/05	4/20/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.95	ug/Kg	4/20/05	4/20/05
EPA 8260B	Chlorobenzene	Not detected	6	0.58	ug/Kg	4/20/05	4/20/05
EPA 8260B	Chloroethane	Not detected	6	1.8	ug/Kg	4/20/05	4/20/05
EPA 8260B	Chloroform	Not detected	6	1.7	ug/Kg	4/20/05	4/20/05
EPA 8260B	Chloromethane	Not detected	6	2.2	ug/Kg	4/20/05	4/20/05
EPA 8260B	cis-1,2-Dichloroethene	77	6	1.3	ug/Kg	4/20/05	4/20/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.56	ug/Kg	4/20/05	4/20/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.0	ug/Kg	4/20/05	4/20/05
EPA 8260B	Ethylbenzene	Not detected	6	0.76	ug/Kg	4/20/05	4/20/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/20/05	4/20/05
EPA 8260B	Methylene chloride	Not detected	60	5.5	ug/Kg	4/20/05	4/20/05
EPA 8260B	Styrene	Not detected	6	0.82	ug/Kg	4/20/05	4/20/05
EPA 8260B	Tetrachloroethene	Not detected	6	0.64	ug/Kg	4/20/05	4/20/05
EPA 8260B	Toluene	Not detected	6	0.78	ug/Kg	4/20/05	4/20/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.6	ug/Kg	4/20/05	4/20/05

J = Estimated value, below quantitation limit.

Run #: 0420C10  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed 4/25/05 5:27:59 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47204

Sample ID: 86-WOPT-1101

APPL ID: AX18232

Sample Collection Date: 4/20/05

CCG: S86TTS-050420AC-85951

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.51	ug/Kg	4/20/05	4/20/05
EPA 8260B	Trichloroethene	2.0 J	6	0.85	ug/Kg	4/20/05	4/20/05
EPA 8260B	Vinyl Acetate	Not detected	60	1.2	ug/Kg	4/20/05	4/20/05
EPA 8260B	Vinyl chloride	Not detected	6	2.0	ug/Kg	4/20/05	4/20/05
EPA 8260B	Xylenes	Not detected	18	0.81	ug/Kg	4/20/05	4/20/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	121	52-149		%	4/20/05	4/20/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	99.5	65-135		%	4/20/05	4/20/05
EPA 8260B	Surrogate recovery: Toluene-d8	92.7	65-135		%	4/20/05	4/20/05

J = Estimated value, below quantitation limit.

Run #: 0420C10  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed 4/25/05 5:27:59 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech F.W., Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47204

Sample ID: 85-WOPT-1102

APPL ID: AX18233

Sample Collection Date: 4/20/05

CCG: S86TTS-050420AC-85951

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 12.3 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	0.92	ug/Kg	4/20/05	4/20/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.4	ug/Kg	4/20/05	4/20/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.55	ug/Kg	4/20/05	4/20/05
EPA 8260B	1,1-Dichloroethane	1.5 J	6	1.3	ug/Kg	4/20/05	4/20/05
EPA 8260B	1,1-Dichloroethene	3.7 J	6	0.90	ug/Kg	4/20/05	4/20/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.82	ug/Kg	4/20/05	4/20/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.71	ug/Kg	4/20/05	4/20/05
EPA 8260B	2-Butanone	Not detected	57	0.81	ug/Kg	4/20/05	4/20/05
EPA 8260B	2-Hexanone	Not detected	57	0.18	ug/Kg	4/20/05	4/20/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	57	1.1	ug/Kg	4/20/05	4/20/05
EPA 8260B	Acetone	5.3 J	110	3.2	ug/Kg	4/20/05	4/20/05
EPA 8260B	Benzene	Not detected	6	0.72	ug/Kg	4/20/05	4/20/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.79	ug/Kg	4/20/05	4/20/05
EPA 8260B	Bromoform	Not detected	6	0.91	ug/Kg	4/20/05	4/20/05
EPA 8260B	Bromomethane	Not detected	11	1.8	ug/Kg	4/20/05	4/20/05
EPA 8260B	Carbon disulfide	Not detected	6	1.2	ug/Kg	4/20/05	4/20/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.91	ug/Kg	4/20/05	4/20/05
EPA 8260B	Chlorobenzene	Not detected	6	0.56	ug/Kg	4/20/05	4/20/05
EPA 8260B	Chloroethane	Not detected	6	1.8	ug/Kg	4/20/05	4/20/05
EPA 8260B	Chloroform	Not detected	6	1.6	ug/Kg	4/20/05	4/20/05
EPA 8260B	Chloromethane	Not detected	6	2.1	ug/Kg	4/20/05	4/20/05
EPA 8260B	cis-1,2-Dichloroethene	24	6	1.2	ug/Kg	4/20/05	4/20/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.54	ug/Kg	4/20/05	4/20/05
EPA 8260B	Dibromochloromethane	Not detected	6	0.97	ug/Kg	4/20/05	4/20/05
EPA 8260B	Ethylbenzene	Not detected	6	0.73	ug/Kg	4/20/05	4/20/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.0	ug/Kg	4/20/05	4/20/05
EPA 8260B	Methylene chloride	Not detected	57	5.2	ug/Kg	4/20/05	4/20/05
EPA 8260B	Styrene	Not detected	6	0.79	ug/Kg	4/20/05	4/20/05
EPA 8260B	Tetrachloroethene	Not detected	6	0.62	ug/Kg	4/20/05	4/20/05
EPA 8260B	Toluene	Not detected	6	0.74	ug/Kg	4/20/05	4/20/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.5	ug/Kg	4/20/05	4/20/05

J = Estimated value, below quantitation limit.

Run #: 0420C09  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:27:59 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



## EPA 8260B

Tetra Tech FW, Inc.  
1940 E Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

ARF: 47204

Sample ID: 86-WOPT-1102

APPL ID: AX18233

Sample Collection Date: 4/20/05

QCG: S86TTS-C50420AC-85951

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.49	ug/Kg	4/20/05	4/20/05
EPA 8260B	Trichloroethene	120	6	0.81	ug/Kg	4/20/05	4/20/05
EPA 8260B	Vinyl Acetate	Not detected	57	1.1	ug/Kg	4/20/05	4/20/05
EPA 8260B	Vinyl chloride	Not detected	6	1.9	ug/Kg	4/20/05	4/20/05
EPA 8260B	Xylenes	Not detected	17	0.78	ug/Kg	4/20/05	4/20/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	118	52-149		%	4/20/05	4/20/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	104	65-135		%	4/20/05	4/20/05
EPA 8260B	Surrogate recovery: Toluene-d8	94.1	65-135		%	4/20/05	4/20/05

J = Estimated value, below quantitation limit.

Run #: 0420C09  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:27:59 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47204

Sample ID: 86-WOPT-1103

APPL ID: AX18234

Sample Collection Date: 4/20/05

QCG: S86TTS-050420AC-85951

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 19.9 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	1.0	ug/Kg	4/20/05	4/20/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.6	ug/Kg	4/20/05	4/20/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.60	ug/Kg	4/20/05	4/20/05
EPA 8260B	1,1-Dichloroethane	Not detected	6	1.4	ug/Kg	4/20/05	4/20/05
EPA 8260B	1,1-Dichloroethene	Not detected	6	0.99	ug/Kg	4/20/05	4/20/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.90	ug/Kg	4/20/05	4/20/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.77	ug/Kg	4/20/05	4/20/05
EPA 8260B	2-Butanone	Not detected	62	0.89	ug/Kg	4/20/05	4/20/05
EPA 8260B	2-Hexanone	Not detected	62	0.20	ug/Kg	4/20/05	4/20/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	62	1.2	ug/Kg	4/20/05	4/20/05
EPA 8260B	Acetone	Not detected	120	3.5	ug/Kg	4/20/05	4/20/05
EPA 8260B	Benzene	Not detected	6	0.79	ug/Kg	4/20/05	4/20/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.86	ug/Kg	4/20/05	4/20/05
EPA 8260B	Bromoform	Not detected	6	1.0	ug/Kg	4/20/05	4/20/05
EPA 8260B	Bromomethane	Not detected	12	2.0	ug/Kg	4/20/05	4/20/05
EPA 8260B	Carbon disulfide	Not detected	6	1.4	ug/Kg	4/20/05	4/20/05
EPA 8260B	Carbon tetrachloride	Not detected	6	1.0	ug/Kg	4/20/05	4/20/05
EPA 8260B	Chlorobenzene	Not detected	6	0.61	ug/Kg	4/20/05	4/20/05
EPA 8260B	Chloroethane	Not detected	6	1.9	ug/Kg	4/20/05	4/20/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	4/20/05	4/20/05
EPA 8260B	Chloromethane	Not detected	6	2.3	ug/Kg	4/20/05	4/20/05
EPA 8260B	cis-1,2-Dichloroethene	Not detected	6	1.3	ug/Kg	4/20/05	4/20/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.59	ug/Kg	4/20/05	4/20/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.1	ug/Kg	4/20/05	4/20/05
EPA 8260B	Ethylbenzene	Not detected	6	0.80	ug/Kg	4/20/05	4/20/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/20/05	4/20/05
EPA 8260B	Methylene chloride	Not detected	62	5.7	ug/Kg	4/20/05	4/20/05
EPA 8260B	Styrene	Not detected	6	0.86	ug/Kg	4/20/05	4/20/05
EPA 8260B	Tetrachloroethene	Not detected	6	0.67	ug/Kg	4/20/05	4/20/05
EPA 8260B	Toluene	Not detected	6	0.81	ug/Kg	4/20/05	4/20/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.7	ug/Kg	4/20/05	4/20/05

J = Estimated value, below quantitation limit.

Run #: 0420C08  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:27:59 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Mcffett Airfield

ARF: 47204

Sample ID: 86-WOPT-1103

APPL ID: AX18234

Sample Collection Date: 4/20/05

QCG: S86TTS-050420AC-85951

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.54	ug/Kg	4/20/05	4/20/05
EPA 8260B	Trichloroethene	3.0 J	6	0.89	ug/Kg	4/20/05	4/20/05
EPA 8260B	Vinyl Acetate	Not detected	62	1.2	ug/Kg	4/20/05	4/20/05
EPA 8260B	Vinyl chloride	Not detected	6	2.1	ug/Kg	4/20/05	4/20/05
EPA 8260B	Xylenes	Not detected	19	0.85	ug/Kg	4/20/05	4/20/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	114	52-149		%	4/20/05	4/20/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	95.3	65-135		%	4/20/05	4/20/05
EPA 8260B	Surrogate recovery: Toluene-d8	95.2	65-135		%	4/20/05	4/20/05

J = Estimated value, below quantitation limit.

Run #: 0420C08  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:27:59 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47204

Sample ID: 86-WOPT-1104

APPL ID: AX18235

Sample Collection Date: 4/20/05

CCG: \$86TTS-050420AC-85951

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 19.1 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	1.0	ug/Kg	4/20/05	4/20/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.5	ug/Kg	4/20/05	4/20/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.59	ug/Kg	4/20/05	4/20/05
EPA 8260B	1,1-Dichloroethane	Not detected	6	1.4	ug/Kg	4/20/05	4/20/05
EPA 8260B	1,1-Dichloroethene	Not detected	6	0.98	ug/Kg	4/20/05	4/20/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.89	ug/Kg	4/20/05	4/20/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.77	ug/Kg	4/20/05	4/20/05
EPA 8260B	2-Butanone	Not detected	62	0.88	ug/Kg	4/20/05	4/20/05
EPA 8260B	2-Hexanone	Not detected	62	0.20	ug/Kg	4/20/05	4/20/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	62	1.1	ug/Kg	4/20/05	4/20/05
EPA 8260B	Acetone	Not detected	120	3.5	ug/Kg	4/20/05	4/20/05
EPA 8260B	Benzene	Not detected	6	0.78	ug/Kg	4/20/05	4/20/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.85	ug/Kg	4/20/05	4/20/05
EPA 8260B	Bromoform	Not detected	6	0.99	ug/Kg	4/20/05	4/20/05
EPA 8260B	Bromomethane	Not detected	12	2.0	ug/Kg	4/20/05	4/20/05
EPA 8260B	Carbon disulfide	Not detected	6	1.3	ug/Kg	4/20/05	4/20/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.99	ug/Kg	4/20/05	4/20/05
EPA 8260B	Chlorobenzene	Not detected	6	0.61	ug/Kg	4/20/05	4/20/05
EPA 8260B	Chloroethane	Not detected	6	1.9	ug/Kg	4/20/05	4/20/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	4/20/05	4/20/05
EPA 8260B	Chloromethane	Not detected	6	2.2	ug/Kg	4/20/05	4/20/05
EPA 8260B	cis-1,2-Dichloroethene	Not detected	6	1.3	ug/Kg	4/20/05	4/20/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.58	ug/Kg	4/20/05	4/20/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.0	ug/Kg	4/20/05	4/20/05
EPA 8260B	Ethylbenzene	Not detected	6	0.79	ug/Kg	4/20/05	4/20/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/20/05	4/20/05
EPA 8260B	Methylene chloride	Not detected	62	5.7	ug/Kg	4/20/05	4/20/05
EPA 8260B	Styrene	Not detected	6	0.85	ug/Kg	4/20/05	4/20/05
EPA 8260B	Tetrachloroethene	Not detected	6	0.67	ug/Kg	4/20/05	4/20/05
EPA 8260B	Toluene	Not detected	6	0.80	ug/Kg	4/20/05	4/20/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.7	ug/Kg	4/20/05	4/20/05

J = Estimated value, below quantitation limit.

Run #: 0420C07  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:27:59 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1104

Sample Collection Date: 4/20/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47204

APPL ID: AX18235

QCG: S86TTS-050420AC-85951

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.53	ug/Kg	4/20/05	4/20/05
EPA 8260B	Trichloroethene	2.5 J	6	0.88	ug/Kg	4/20/05	4/20/05
EPA 8260B	Vinyl Acetate	Not detected	62	1.2	ug/Kg	4/20/05	4/20/05
EPA 8260B	Vinyl chloride	Not detected	6	2.1	ug/Kg	4/20/05	4/20/05
EPA 8260B	Xylenes	Not detected	19	0.84	ug/Kg	4/20/05	4/20/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	130	52-149		%	4/20/05	4/20/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	105	65-135		%	4/20/05	4/20/05
EPA 8260B	Surrogate recovery: Toluene-d8	87.3	65-135		%	4/20/05	4/20/05

J = Estimated value, below quantitation limit.

Run #: 0420C07  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed 4/25/05 5:27:59 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Blenkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1105

Sample Collection Date: 4/20/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47204

APPL ID: AX18236

QCG: \$86TTW-050420BS-85958

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/21/05	4/21/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/21/05	4/21/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/21/05	4/21/05
EPA 8260B	1,1-Dichloroethane	Not detected	0.5	0.19	ug/L	4/21/05	4/21/05
EPA 8260B	1,1-Dichloroethene	Not detected	0.5	0.30	ug/L	4/21/05	4/21/05
EPA 8260B	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/21/05	4/21/05
EPA 8260B	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/21/05	4/21/05
EPA 8260B	2-Butanone	Not detected	5	0.6	ug/L	4/21/05	4/21/05
EPA 8260B	2-Hexanone	Not detected	5	0.92	ug/L	4/21/05	4/21/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/21/05	4/21/05
EPA 8260B	Acetone	Not detected	5	0.95	ug/L	4/21/05	4/21/05
EPA 8260B	Benzene	Not detected	0.5	0.16	ug/L	4/21/05	4/21/05
EPA 8260B	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/21/05	4/21/05
EPA 8260B	Bromoform	Not detected	0.5	0.14	ug/L	4/21/05	4/21/05
EPA 8260B	Bromomethane	Not detected	1	0.24	ug/L	4/21/05	4/21/05
EPA 8260B	Carbon disulfide	Not detected	0.5	0.2	ug/L	4/21/05	4/21/05
EPA 8260B	Carbon tetrachloride	Not detected	0.5	0.10	ug/L	4/21/05	4/21/05
EPA 8260B	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/21/05	4/21/05
EPA 8260B	Chloroethane	Not detected	0.5	0.21	ug/L	4/21/05	4/21/05
EPA 8260B	Chloroform	Not detected	0.5	0.16	ug/L	4/21/05	4/21/05
EPA 8260B	Chloromethane	Not detected	0.5	0.31	ug/L	4/21/05	4/21/05
EPA 8260B	cis-1,2-Dichloroethene	Not detected	0.5	0.16	ug/L	4/21/05	4/21/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/21/05	4/21/05
EPA 8260B	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/21/05	4/21/05
EPA 8260B	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/21/05	4/21/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/21/05	4/21/05
EPA 8260B	Methylene chloride	Not detected	5	0.35	ug/L	4/21/05	4/21/05
EPA 8260B	Styrene	Not detected	0.5	0.25	ug/L	4/21/05	4/21/05
EPA 8260B	Tetrachloroethene	Not detected	0.5	0.15	ug/L	4/21/05	4/21/05
EPA 8260B	Toluene	Not detected	0.5	0.17	ug/L	4/21/05	4/21/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	0.5	0.19	ug/L	4/21/05	4/21/05

Run #: 0420S35  
Instrument: Sweetpea  
Sequence: S050420  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:27:59 PM  
APPL-F1-S-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Blenkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1105

Sample Collection Date: 4/20/05

AFPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF. 47204

APPL ID: AX18236

QCG: S86TTW-050420BS-85958

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/21/05	4/21/05
EPA 8260B	Trichloroethene	Not detected	0.5	0.16	ug/L	4/21/05	4/21/05
EPA 8260B	Vinyl Acetate	Not detected	5	0.31	ug/L	4/21/05	4/21/05
EPA 8260B	Vinyl chloride	Not detected	0.5	0.23	ug/L	4/21/05	4/21/05
EPA 8260B	Xylenes	Not detected	1.5	0.19	ug/L	4/21/05	4/21/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	109	62-139		%	4/21/05	4/21/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	106	75-125		%	4/21/05	4/21/05
EPA 8260B	Surrogate recovery: Toluene-d8	103	75-125		%	4/21/05	4/21/05

Run #: 0420S35  
Instrument: Sweetpea  
Sequence: S050420  
Dilution Factor: 1  
Initials: LF

Printed: 4/25/05 5:27:59 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47204

Sample ID: 86-WOPT-577

APPL ID: AX18208

Sample Collection Date: 4/20/05

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	394	25	0.14	mg/L	4/26/05	4/29/05
6010B	Calcium (Ca)	384 E	5	0.0272	mg/L	4/26/05	5/7/05
6010B	Iron (Fe)	47.0	0.50	0.13	mg/L	4/26/05	4/29/05
6010B	Iron (Fe)	40.2 E	0.1	0.0258	mg/L	4/26/05	5/7/05
6010B	Magnesium (Mg)	115	25	0.065	mg/L	4/26/05	4/29/05
6010B	Magnesium (Mg)	116 E	5	0.0129	mg/L	4/26/05	5/7/05
6010B	Potassium (K)	8.3	5	0.0695	mg/L	4/26/05	5/7/05
6010B	Sodium (Na)	61.8	25	0.56	mg/L	4/26/05	5/7/05
6010B	Sodium (Na)	63.6 E	5	0.1111	mg/L	4/26/05	5/7/05

E = The reported value exceeds linear range.

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2L-F1-SC-MCRes/MCPQL-REG MDLs



## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47204

Sample ID: 86-WOPT-578

APPL ID: AX18209

Sample Collection Date: 4/20/05

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	445	25	0.14	mg/L	4/26/05	4/29/05
6010B	Calcium (Ca)	430 E	5	0.0272	mg/L	4/26/05	5/7/05
6010B	Iron (Fe)	95.3	0.50	0.13	mg/L	4/26/05	4/29/05
6010B	Iron (Fe)	82.0 E	0.1	0.0258	mg/L	4/26/05	5/7/05
6010B	Magnesium (Mg)	72.1	5	0.0129	mg/L	4/26/05	5/7/05
6010B	Potassium (K)	3.8 J	5	0.0995	mg/L	4/26/05	5/7/05
6010B	Sodium (Na)	55.7	25	0.56	mg/L	4/26/05	5/7/05
6010B	Sodium (Na)	58.1 E	5	0.1111	mg/L	4/26/05	5/7/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

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2L-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47204

Sample ID: 86-WOPT-579

APPL ID: AX18210

Sample Collection Date: 4/20/05

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	751	50	0.27	mg/L	5/6/05	5/11/05
6010B	Calcium (Ca)	709 E	5	0.0272	mg/L	5/6/05	5/10/05
6010B	Iron (Fe)	133	0.50	0.13	mg/L	5/6/05	5/11/05
6010B	Iron (Fe)	120 E	0.1	0.0258	mg/L	5/6/05	5/10/05
6010B	Magnesium (Mg)	195	25	0.065	mg/L	5/6/05	5/11/05
6010B	Magnesium (Mg)	200 E	5	0.0129	mg/L	5/6/05	5/10/05
6010B	Potassium (K)	39.5	5	0.0995	mg/L	5/6/05	5/10/05
6010B	Sodium (Na)	65.3	25	0.56	mg/L	5/6/05	5/11/05
6010B	Sodium (Na)	67.3 E	5	0.1111	mg/L	5/6/05	5/10/05

E = The reported value exceeds linear range.

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2L-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47204

Sample ID: 86-WOPT-580

APPL ID: AX18211

Sample Collection Date: 4/20/05

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	346	25	0.14	mg/L	4/26/05	4/29/05
6010B	Calcium (Ca)	351 E	5	0.0272	mg/L	4/26/05	5/7/05
6010B	Iron (Fe)	49.2	0.50	0.13	mg/L	4/26/05	4/29/05
6010B	Iron (Fe)	43.4 E	0.1	0.0258	mg/L	4/26/05	5/7/05
6010B	Magnesium (Mg)	103	25	0.065	mg/L	4/26/05	4/29/05
6010B	Magnesium (Mg)	106 E	5	0.0129	mg/L	4/26/05	5/7/05
6010B	Potassium (K)	12.7	5	0.0995	mg/L	4/26/05	5/7/05
6010B	Sodium (Na)	42.9	5	0.1111	mg/L	4/26/05	5/7/05

E = The reported value exceeds linear range.

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3L-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47204

Sample ID: 86-WOPT-581

APPL ID: AX18212

Sample Collection Date: 4/20/05

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	457	25	0.14	mg/L	4/26/05	4/29/05
6010B	Calcium (Ca)	429 E	5	0.0272	mg/L	4/26/05	5/7/05
6010B	Iron (Fe)	15.1	0.1	0.0258	mg/L	4/26/05	5/7/05
6010B	Magnesium (Mg)	117	25	0.065	mg/L	4/26/05	4/29/05
6010B	Magnesium (Mg)	111 E	5	0.0129	mg/L	4/26/05	5/7/05
6010B	Potassium (K)	16.6	5	0.0995	mg/L	4/26/05	5/7/05
6010B	Sodium (Na)	44.7	5	0.1111	mg/L	4/26/05	5/7/05

E = The reported value exceeds linear range.

Printed: 5/11/05 3:08:16 PM

2L-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47204

Sample ID: 86-WOPT-582

APPL ID: AX18213

Sample Collection Date: 4/20/05

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	199	25	0.14	mg/L	4/26/05	4/29/05
6010B	Calcium (Ca)	187 E	5	0.0272	mg/L	4/26/05	5/7/05
6010B	Iron (Fe)	12.9	0.1	0.0258	mg/L	4/26/05	5/7/05
6010B	Magnesium (Mg)	39.3	5	0.0129	mg/L	4/26/05	5/7/05
6010B	Potassium (K)	12.2	5	0.0995	mg/L	4/26/05	5/7/05
6010B	Sodium (Na)	45.4	5	0.1111	mg/L	4/26/05	5/7/05

E = The reported value exceeds linear range.

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-1092**

Sample Collection Date: 4/20/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47204

**APPL ID: AX18223**

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	533	50	0.27	mg/L	5/6/05	5/11/05
6010B	Calcium (Ca)	516 E	5	0.0272	mg/L	5/6/05	5/10/05
6010B	Iron (Fe)	78.6	0.50	0.13	mg/L	5/6/05	5/11/05
6010B	Iron (Fe)	72.7 E	0.1	0.0258	mg/L	5/6/05	5/10/05
6010B	Magnesium (Mg)	121	25	0.065	mg/L	5/6/05	5/11/05
6010B	Magnesium (Mg)	122 E	5	0.0129	mg/L	5/6/05	5/10/05
6010B	Potassium (K)	9.6	5	0.0995	mg/L	5/6/05	5/10/05
6010B	Sodium (Na)	49.4	5	0.1111	mg/L	5/6/05	5/10/05

E = The reported value exceeds linear range.

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2L-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1093

Sample Collection Date: 4/20/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47204

APPL ID: AX18224

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	259	25	0.14	mg/L	4/26/05	4/29/05
6010B	Calcium (Ca)	250 E	5	0.0272	mg/L	4/26/05	5/7/05
6010B	Iron (Fe)	39.5	0.1	0.0258	mg/L	4/26/05	5/7/05
6010B	Magnesium (Mg)	86.5	5	0.0129	mg/L	4/26/05	5/7/05
6010B	Potassium (K)	6.3	5	0.0995	mg/L	4/26/05	5/7/05
6010B	Sodium (Na)	40.4	5	0.1111	mg/L	4/26/05	5/7/05

E = The reported value exceeds linear range.

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47204

**Sample ID: 86-WOPT-1094**

**APPL ID: AX18225**

Sample Collection Date: 4/20/05

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	242	25	0.14	mg/L	4/26/05	4/29/05
6010B	Calcium (Ca)	237 E	5	0.0272	mg/L	4/26/05	5/7/05
6010B	Iron (Fe)	33.7	0.1	0.0258	mg/L	4/26/05	5/7/05
6010B	Magnesium (Mg)	81.5	5	0.0129	mg/L	4/26/05	5/7/05
6010B	Potassium (K)	7.4	5	0.0995	mg/L	4/26/05	5/7/05
6010B	Sodium (Na)	39.2	5	0.1111	mg/L	4/26/05	5/7/05

E = The reported value exceeds linear range.

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2L-F1-SC-MCRes/MCPQL-REG MDLs



## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47204

Sample ID: 86-WOPT-1095

APPL ID: AX18226

Sample Collection Date: 4/20/05

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	536	50	0.27	mg/L	5/6/05	5/11/05
6010B	Calcium (Ca)	511 E	5	0.0272	mg/L	5/6/05	5/10/05
6010B	Iron (Fe)	235	1.0	0.26	mg/L	5/6/05	5/11/05
6010B	Iron (Fe)	205 E	0.1	0.0258	mg/L	5/6/05	5/10/05
6010B	Magnesium (Mg)	158	25	0.065	mg/L	5/6/05	5/11/05
6010B	Magnesium (Mg)	155 E	5	0.0129	mg/L	5/6/05	5/10/05
6010B	Potassium (K)	30.3	5	0.0995	mg/L	5/6/05	5/10/05
6010B	Sodium (Na)	45.8	5	0.1111	mg/L	5/6/05	5/10/05

E = The reported value exceeds linear range.

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2L-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47204

Sample ID: 86-WOPT-1096

APPL ID: AX18227

Sample Collection Date: 4/20/05

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	490	25	0.14	mg/L	4/26/05	4/29/05
6010B	Calcium (Ca)	427 E	5	0.0272	mg/L	4/26/05	5/7/05
6010B	Iron (Fe)	10.3	0.1	0.0258	mg/L	4/26/05	5/7/05
6010B	Magnesium (Mg)	85.3	5	0.0129	mg/L	4/26/05	5/7/05
6010B	Potassium (K)	7.4	5	0.0995	mg/L	4/26/05	5/7/05
6010B	Sodium (Na)	40.4	5	0.1111	mg/L	4/26/05	5/7/05

E = The reported value exceeds linear range.

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<sup>2</sup>L-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Blenkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47204

Sample ID: 86-WOPT-1097

APPL ID: AX18228

Sample Collection Date: 4/20/05

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	198	25	0.14	mg/L	4/26/05	5/7/05
6010B	Calcium (Ca)	213 E	5	0.0272	mg/L	4/26/05	5/7/05
6010B	Iron (Fe)	35.8	0.1	0.0258	mg/L	4/26/05	5/7/05
6010B	Magnesium (Mg)	83.0	5	0.0129	mg/L	4/26/05	5/7/05
6010B	Potassium (K)	12.2	5	0.0995	mg/L	4/26/05	5/7/05
6010B	Sodium (Na)	37.4	5	0.1111	mg/L	4/26/05	5/7/05

E = The reported value exceeds linear range.

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2L-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech F/W, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1098

Sample Collection Date: 4/20/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47204

APPL ID: AX18229

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	385	25	0.14	mg/L	4/26/05	4/30/05
6010B	Calcium (Ca)	351 E	5	0.0272	mg/L	4/26/05	5/7/05
6010B	Iron (Fe)	12.5	0.1	0.0258	mg/L	4/26/05	5/7/05
6010B	Magnesium (Mg)	89.3	5	0.0129	mg/L	4/26/05	5/7/05
6010B	Potassium (K)	10.9	5	0.0995	mg/L	4/26/05	5/7/05
6010B	Sodium (Na)	40.5	5	0.1111	mg/L	4/26/05	5/7/05

E = The reported value exceeds linear range.

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2L-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-577

Sample Collection Date: 4/20/05

APPL ID: AX18203

ARF: 47204

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	47400	1000	80	ug/L	4/22/05	4/22/05
EPA 300.0	Nitrate	2530	200	15	ug/L	4/22/05	4/22/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/22/05	4/22/05
EPA 300.0	Sulfate	349000 E	1000	90	ug/L	4/22/05	4/22/05
EPA 300.0	Sulfate	289000	5000	450	ug/L	4/22/05	4/22/05
EPA 310.1	Bicarbonate	274	5	0.787	mg/L	4/28/05	4/28/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/28/05	4/28/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-578

Sample Collection Date: 4/20/05

APPL ID: AX18209

ARF: 47204

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	52300	1000	80	ug/L	4/22/05	4/22/05
EPA 300.0	Nitrate	2340	200	15	ug/L	4/22/05	4/22/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/22/05	4/22/05
EPA 300.0	Sulfate	322000 E	1000	90	ug/L	4/22/05	4/22/05
EPA 300.0	Sulfate	268000	5000	450	ug/L	4/22/05	4/22/05
EPA 310.1	Bicarbonate	288	5	0.787	mg/L	4/28/05	4/28/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/28/05	4/28/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-579

Sample Collection Date: 4/20/05

APPL ID: AX18210

ARF: 47204

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	43300	1000	80	ug/L	4/22/05	4/22/05
EPA 300.0	Nitrate	8010	200	15	ug/L	4/22/05	4/22/05
EPA 300.0	Nitrite	980	100	33	ug/L	4/22/05	4/22/05
EPA 300.0	Sulfate	341000 E	1000	90	ug/L	4/22/05	4/22/05
EPA 300.0	Sulfate	283000	5000	450	ug/L	4/22/05	4/22/05
EPA 310.1	Bicarbonate	280	5	0.787	mg/L	4/28/05	4/28/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/28/05	4/28/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-580

Sample Collection Date: 4/20/05

APPL ID: AX18211

ARF: 47204

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	39500	1000	80	ug/L	4/22/05	4/22/05
EPA 300.0	Nitrate	8850	200	15	ug/L	4/22/05	4/22/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/22/05	4/22/05
EPA 300.0	Sulfate	222000 E	1000	90	ug/L	4/22/05	4/22/05
EPA 300.0	Sulfate	185000	5000	450	ug/L	4/22/05	4/22/05
EPA 310.1	Bicarbonate	284	5	0.787	mg/L	4/28/05	4/28/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/28/05	4/28/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs



## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-581

Sample Collection Date: 4/20/05

APPL ID: AX18212

ARF: 47204

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	39400	1000	80	ug/L	4/22/05	4/22/05
EPA 300.0	Nitrate	11000	200	15	ug/L	4/22/05	4/22/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/22/05	4/22/05
EPA 300.0	Sulfate	199000 E	1000	90	ug/L	4/22/05	4/22/05
EPA 300.0	Sulfate	166000	5000	450	ug/L	4/22/05	4/22/05
EPA 310.1	Bicarbonate	271	5	0.787	mg/L	4/28/05	4/28/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/28/05	4/28/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-582

Sample Collection Date: 4/20/05

APPL ID: AX18213

ARF: 47204

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	40000	1000	80	ug/L	4/22/05	4/22/05
EPA 300.0	Nitrate	3500	200	15	ug/L	4/22/05	4/22/05
EPA 300.0	Nitrite	926	100	33	ug/L	4/22/05	4/22/05
EPA 300.0	Sulfate	221000 E	1000	90	ug/L	4/22/05	4/22/05
EPA 300.0	Sulfate	183000	5000	450	ug/L	4/22/05	4/22/05
EPA 310.1	Bicarbonate	91.2	5	0.787	mg/L	4/28/05	4/28/05
EPA 310.1	Carbonate	8.8	5	0.787	mg/L	4/28/05	4/28/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-583

Sample Collection Date: 4/20/05

APPL ID: AX18214

ARF: 47204

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 25.7 Percent Moisture.)							
CLP MOIST	Moisture	25.7	2.0		%	4/20/05	4/20/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-584

Sample Collection Date: 4/20/05

APPL ID: AX18215

ARF: 47204

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 20.1 Percent Moisture.)							
CLP MOIST	Moisture	20.1	2.0		%	4/20/05	4/20/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-585**

Sample Collection Date: 4/20/05

**APPL ID: AX18216**

ARF: 47204

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 24.2 Percent Moisture.)							
CLP MOIST	Moisture	24.2	2.0		%	4/20/05	4/20/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-586**

Sample Collection Date: 4/20/05

**APPL ID: AX18217**

ARF: 47204

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 19.6 Percent Moisture.)							
CLP MOIST	Moisture	19.6	2.0		%	4/20/05	4/20/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-587

Sample Collection Date: 4/20/05

APPL ID: AX18218

ARF: 47204

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 17.0 Percent Moisture.)							
CLP MOIST	Moisture	17.0	2.0		%	4/20/05	4/20/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-588

Sample Collection Date: 4/20/05

APPL ID: AX18219

ARF: 47204

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 14.4 Percent Moisture.)							
CLP MOIST	Moisture	14.4	2.0		%	4/20/05	4/20/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs



## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-589**

**APPL ID: AX18220**

Sample Collection Date: 4/20/05

ARF: 47204

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 12.8 Percent Moisture.)							
CLP MOIST	Moisture	12.8	2.0		%	4/20/05	4/20/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-590

Sample Collection Date: 4/20/05

APPL ID: AX18221

ARF: 47204

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
SW846 9060	Total Organic Carbon	0.77	0.5	0.129	mg/L	5/16/05	5/16/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1092

Sample Collection Date: 4/20/05

APPL ID: AX18223

ARF: 47204

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	28200	1000	80	ug/L	4/22/05	4/22/05
EPA 300.0	Nitrate	2410	200	15	ug/L	4/22/05	4/22/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/22/05	4/22/05
EPA 300.0	Sulfate	146000 E	1000	90	ug/L	4/22/05	4/22/05
EPA 300.0	Sulfate	125000	5000	450	ug/L	4/22/05	4/22/05
EPA 310.1	Bicarbonate	681	5	0.787	mg/L	4/28/05	4/28/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/28/05	4/28/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1093

Sample Collection Date: 4/20/05

APPL ID: AX18224

ARF: 47204

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	41600	1000	80	ug/L	4/22/05	4/22/05
EPA 300.0	Nitrate	2430	200	15	ug/L	4/22/05	4/22/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/22/05	4/22/05
EPA 300.0	Sulfate	488000 E	1000	90	ug/L	4/22/05	4/22/05
EPA 300.0	Sulfate	411000	5000	450	ug/L	4/22/05	4/22/05
EPA 310.1	Bicarbonate	334	5	0.787	mg/L	4/28/05	4/28/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/28/05	4/28/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1094

Sample Collection Date: 4/20/05

APPL ID: AX18225

ARF: 47204

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	42200	1000	80	ug/L	4/22/05	4/22/05
EPA 300.0	Nitrate	2410	200	15	ug/L	4/22/05	4/22/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/22/05	4/22/05
EPA 300.0	Sulfate	490000 E	1000	90	ug/L	4/22/05	4/22/05
EPA 300.0	Sulfate	411000	5000	450	ug/L	4/22/05	4/22/05
EPA 310.1	Bicarbonate	332	5	0.787	mg/L	4/28/05	4/28/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/28/05	4/28/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: **86-WOPT-1095**

Sample Collection Date: 4/20/05

APPL ID: **AX18226**

ARF: 47204

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	42500	1000	80	ug/L	4/22/05	4/22/05
EPA 300.0	Nitrate	2590	200	15	ug/L	4/22/05	4/22/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/22/05	4/22/05
EPA 300.0	Sulfate	434000 E	1000	90	ug/L	4/22/05	4/22/05
EPA 300.0	Sulfate	363000	5000	450	ug/L	4/22/05	4/22/05
EPA 310.1	Bicarbonate	283	5	0.787	mg/L	4/28/05	4/28/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/28/05	4/28/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1096

Sample Collection Date: 4/20/05

APPL ID: AX18227

ARF: 47204

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	39100	1000	80	ug/L	4/22/05	4/22/05
EPA 300.0	Nitrate	3290	200	15	ug/L	4/22/05	4/22/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/22/05	4/22/05
EPA 300.0	Sulfate	380000 E	1000	90	ug/L	4/22/05	4/22/05
EPA 300.0	Sulfate	314000	5000	450	ug/L	4/22/05	4/22/05
EPA 310.1	Bicarbonate	275	5	0.787	mg/L	4/28/05	4/28/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/28/05	4/28/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1097

Sample Collection Date: 4/20/05

APPL ID: AX18228

ARF: 47204

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	35600	1000	80	ug/L	4/22/05	4/22/05
EPA 300.0	Nitrate	2610	200	15	ug/L	4/22/05	4/22/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/22/05	4/22/05
EPA 300.0	Sulfate	257000 E	1000	90	ug/L	4/22/05	4/22/05
EPA 300.0	Sulfate	213000	5000	450	ug/L	4/22/05	4/22/05
EPA 310.1	Bicarbonate	240	5	0.787	mg/L	4/28/05	4/28/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/28/05	4/28/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs



## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1098

Sample Collection Date: 4/20/05

APPL ID: AX18229

ARF: 47204

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	31200	1000	80	ug/L	4/22/05	4/22/05
EPA 300.0	Nitrate	4520	200	15	ug/L	4/22/05	4/22/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/22/05	4/22/05
EPA 300.0	Sulfate	207000 E	1000	90	ug/L	4/22/05	4/22/05
EPA 300.0	Sulfate	172000	5000	450	ug/L	4/22/05	4/22/05
EPA 310.1	Bicarbonate	226	5	0.787	mg/L	4/28/05	4/28/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	4/28/05	4/28/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-1099**

Sample Collection Date: 4/20/05

**APPL ID: AX18230**

ARF: 47204

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 20.4 Percent Moisture.)							
CLP MOIST	Moisture	20.4	2.0		%	4/20/05	4/20/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-1100**

Sample Collection Date: 4/20/05

**APPL ID: AX18231**

ARF: 47204

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 21.9 Percent Moisture.)							
CLP MOIST	Moisture	21.9	2.0		%	4/20/05	4/20/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-1101**

Sample Collection Date: 4/20/05

**APPL ID: AX18232**

ARF: 47204

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 16.2 Percent Moisture.)							
CLP MOIST	Moisture	16.2	2.0		%	4/20/05	4/20/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1102

Sample Collection Date: 4/20/05

APPL ID: AX18233

ARF: 47204

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 12.3 Percent Moisture.)							
CLP MOIST	Moisture	12.3	2.0		%	4/20/05	4/20/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1103

Sample Collection Date: 4/20/05

APPL ID: AX18234

ARF: 47204

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 19.9 Percent Moisture.)							
CLP MOIST	Moisture	19.9	2.0		%	4/20/05	4/20/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1104

Sample Collection Date: 4/20/05

APPL ID: AX18235

ARF: 47204

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 19.1 Percent Moisture.)							
CLP MOIST	Moisture	19.1	2.0		%	4/20/05	4/20/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-1105**

Sample Collection Date: 4/20/05

**APPL ID: AX18236**

ARF: 47204

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
SW846 9060	Total Organic Carbon	0.71	0.5	0.129	mg/L	5/16/05	5/16/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs



May 2, 2005

Service Request No: K2502950

Robert Wise  
APPL, Inc.  
4203 W. Swift Avenue  
Fresno, CA 93722

**RE: 47204**

Dear Robert:

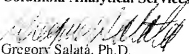
Enclosed are the results of the sample(s) submitted to our laboratory on April 22, 2005. For your reference, these analyses have been assigned our service request number K2502950.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAC standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3376.

Respectfully submitted,

**Columbia Analytical Services, Inc.**

  
Gregory Salata, Ph.D.  
Project Chemist

GS/dj

Page 1 of 15

COLUMBIA ANALYTICAL SERVICES, INC.

Client: Agriculture & Priority Pollutants Labs  
Project: 47204  
Sample Matrix: Soil

Service Request No.: K2502950  
Date Received: 04/22/05

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier III validation deliverables including summary forms and all of the associated raw data for each of the analyses. When appropriate to the method, method blank results have been reported with each analytical test.

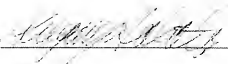
Sample Receipt

Thirteen soil samples were received for analysis at Columbia Analytical Services on 04/22/05. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

General Chemistry Parameters

No anomalies associated with the analysis of these samples were observed.

Approved by



Date



00065

## COLUMBIA ANALYTICAL SERVICES, INC.

## Analytical Report

Client : Agriculture & Priority Pollutants Labs  
 Project Name : NA  
 Project Number : 47204  
 Sample Matrix : SOIL

Service Request : K2502950  
 Date Collected : 04/20/05  
 Date Received : 04/22/05

## Carbon, Total Organic

Analysis Method : Walkley-Black  
 Test Notes :

Units : mg Kg (ppm)  
 Basis : Dry

Sample Name	Lab Code	MRI	MDL	Dilution	Date Analyzed	Result	Result Notes
				Factor			
86-WOPT-583	K2502950-001	2000	900	1	04/29/05	3170	
86-WOPT-584	K2502950-002	2000	900	1	04/29/05	4150	
86-WOPT-585	K2502950-003	2000	900	1	04/29/05	4700	
86-WOPT-586	K2502950-004	2000	900	1	04/29/05	1150	J
86-WOPT-587	K2502950-005	2000	900	1	04/29/05	1180	J
86-WOPT-588	K2502950-006	2000	900	1	04/29/05	ND	
86-WOPT-589	K2502950-007	2000	900	1	04/29/05	1530	J
86-WOPT-1099	K2502950-008	2000	900	1	04/29/05	ND	
86-WOPT-1100	K2502950-009	2000	900	1	04/29/05	4430	
86-WOPT-1101	K2502950-010	2000	900	1	04/29/05	1850	J
86-WOPT-1102	K2502950-011	2000	900	1	04/29/05	ND	
86-WOPT-1103	K2502950-012	2000	900	1	04/29/05	1050	J
86-WOPT-1104	K2502950-013	2000	900	1	04/29/05	1080	J
Method Blank	K2502950-MB	2000	900	1	04/29/05	ND	

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Air Field, Building 88, CTO 86

**Collection Date:** April 20, 2005

**LDC Report Date:** May 25, 2005

**Matrix:** Water

**Parameters:** Volatiles

**Validation Level:** EPA Level III & IV

**Laboratory:** APPL, Inc.

**Sample Delivery Group (SDG):** 47204

**Sample Identification**

86-WOPT-583  
86-WOPT-583DL  
86-WOPT-584  
86-WOPT-584DL  
86-WOPT-585  
86-WOPT-585DL  
86-WOPT-586\*\*  
86-WOPT-587  
86-WOPT-588  
86-WOPT-589  
86-WOPT-590  
86-WOPT-1099  
86-WOPT-1100  
86-WOPT-1101\*\*  
86-WOPT-1102  
86-WOPT-1103  
86-WOPT-1104  
86-WOPT-1105  
86-WOPT-583MS  
86-WOPT-583MSD

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 20 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## III. Initial Calibration

Initial calibration was performed using required standard concentrations.

The mean percent relative standard deviation (%RSD) for all compounds was less than or equal to 15.0% and less than or equal to 30.0% for all individual compounds.

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination ( $r^2$ ) was greater than or equal to 0.990 .

Average relative response factors (RRF) for all system performance check compounds (SPCCs) were within method and validation criteria.

## IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

For the purposes of technical evaluation, all compounds were evaluated against the 20.0% (%D) National Functional Guideline criteria. Unless noted above, all compounds were within the validation criteria with the following exceptions:

Data	Compound	%D	Associated Samples	Flag	A or P
4/20/05	2-Hexanone	28	86-WOPT-584	J (all detects)	A
	4-Methyl-2-pentanone	24	86-WOPT-585	UJ (all non-detects)	
			86-WOPT-586**	J (all detects)	
			86-WOPT-587	UJ (all non-detects)	
			86-WOPT-588		
			86-WOPT-589		
			86-WOPT-1099		
			86-WOPT-1100		
			86-WOPT-1101**		
			86-WOPT-1102		
			86-WOPT-1103		
			86-WOPT-1104		
			050420A-BLK1SC		

Date	Compound	%D	Associated Samples	Flag	A or P
4/21/05	Bromomethane	21	86-WOPT-583	J (all detects) UJ (all non-detects)	A
	Tetrachloroethene	22	86-WOPT-583MS		
	2-Hexanone	27	86-WOPT-583MSD		
	4-Methyl-2-pentanone	22	050420B-BLK1 SC		

All of the continuing calibration RRF values for all system performance check compounds (SPCCs) were within method and validation criteria.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Sample)	Compound	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
86-WOPT-583MS/MSD (86-WOPT-583)	Trichloroethene	-	-	61.1 (≤30)	J (all detects) UJ (all non-detects)	A

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## IX. Regional Quality Assurance and Quality Control

Not applicable.

## X. Internal Standards

All internal standard areas and retention times were within QC limits with the following exceptions:

Sample	Internal Standards	Area (Limits)	Compound	Flag	A or P
86-WOPT-1100	Chlorobenzene-d5 1,4-Dichlorobenzene-d4	203495 (211070-844260) 63684 (117921-471664)	Dibromochloromethane Bromoform 2-Hexanone Tetrachloroethene Chlorobenzene Ethylbenzene Styrene Xylenes, total 4-Methyl-2-pentanone 1,1,2,2-Tetrachloroethane	J (all detects) UJ (all non-detects)	A

## XI. Target Compound Identifications

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
86-WOPT-583 86-WOPT-584 86-WOPT-585	cis-1,2-Dichloroethane	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	A

Raw data were not evaluated for the samples reviewed by Level III criteria.

## XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

## XIV. System Performance

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## XV. Overall Assessment

Data flags are summarized at the end of this report if data has been qualified.



## XVI. Field Duplicates

No field duplicates were identified in this SDG.

## XVII. Field Blanks

Samples 86-WOPT-590 and 86-WOPT-1105 were identified as trip blanks. No volatile contaminants were found in these blanks with the following exceptions:

Trip Blank ID	Compound	Concentration (ug/L)
86-WOPT-590	Chloroform	0.23

**Moffett Air Field, Building 88, CTO 86**  
**Volatiles - Data Qualification Summary - SDG 47204**

SDG	Sample	Compound	Flag	A or P	Reason
47204	86-WOPT-584 86-WOPT-585 86-WOPT-586** 86-WOPT-587 86-WOPT-588 86-WOPT-589 86-WOPT-1099 86-WOPT-1100 86-WOPT-1101** 86-WOPT-1102 86-WOPT-1103 86-WOPT-1104	2-Hexanone  4-Methyl-2-pentanone	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
47204	86-WOPT-583	Bromomethane Tetrachloroethene 2-Hexanone 4-Methyl-2-pentanone	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
47204	86-WOPT-583	Trichloroethene	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicates (RPD)
47204	86-WOPT-1100	Dibromochloromethane Bromoform 2-Hexanone Tetrachloroethene Chlorobenzene Ethylbenzene Styrene Xylenes, total 4-Methyl-2-pentanone 1,1,2,2-Tetrachloroethane	J (all detects) UJ (all non-detects)	A	Internal standards (area)
47204	86-WOPT-583 86-WOPT-584 86-WOPT-585	cis-1,2-Dichloroethene	J (all detects)	A	Compound quantitation and CRQLs

**Moffett Air Field, Building 88, CTO 86**  
**Volatiles - Laboratory Blank Data Qualification Summary - SDG 47204**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.**  
**Data Validation Report**

**Project/Site Name:** Moffett Air Field, Building 88, CTO 86  
**Collection Date:** April 20, 2005  
**LDC Report Date:** May 25, 2005  
**Matrix:** Water  
**Parameters:** Volatiles  
**Validation Level:** EPA Level III & IV  
**Laboratory:** APPL, Inc.

**Sample Delivery Group (SDG):** 47204

**Sample Identification**

86-WOPT-576	86-WOPT-1096DL
86-WOPT-577**	86-WOPT-1097
86-WOPT-577DL**	86-WOPT-1097DL
86-WOPT-578	86-WOPT-1098**
86-WOPT-578DL	86-WOPT-1097MS
86-WOPT-579	86-WOPT-1097MSD
86-WOPT-579DL	
86-WOPT-580	
86-WOPT-580DL	
86-WOPT-581**	
86-WOPT-581DL**	
86-WOPT-582	
86-WOPT-582DL	
86-WOPT-1091	
86-WOPT-1092**	
86-WOPT-1093	
86-WOPT-1094	
86-WOPT-1095**	
86-WOPT-1095DL**	
86-WOPT-1096	

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 26 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Contract Laboratory Program Statement of Work (SOW) OLM04.2 for Volatiles.

This review follows USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999); the following subsections correlate to the above guidelines.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 30.0% for all compounds with the following exceptions:

Date	Compound	%RSD	Associated Samples	Flag	A or P
4/18/05	Bromomethane	35	86-WOPT-576 86-WOPT-577** 86-WOPT-578 86-WOPT-579 86-WOPT-580 86-WOPT-581** 86-WOPT-582 86-WOPT-1091 86-WOPT-1092** 86-WOPT-1093 86-WOPT-1094 86-WOPT-1095** 86-WOPT-1096 86-WOPT-1097 86-WOPT-1098** 86-WOPT-1097MS 86-WOPT-1097MSD 050420BLK-1WN 050420CBK-1WN	J (all detects) UJ (all non-detects)	A

Average relative response factors (RRF) for all volatile target compounds and system monitoring compounds were within validation criteria.

## IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 25.0% .

All of the continuing calibration RRF values were within validation criteria.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Analysis Date	Compound TIC (RT in minutes)	Concentration	Associated Samples
050420BBLK-1WN	4/20/05	Acetone Tetrachloroethene Trichloroethene	2.8 ug/L 0.26 ug/L 0.52 ug/L	86-WOPT-576 86-WOPT-577** 86-WOPT-578 86-WOPT-579 86-WOPT-580 86-WOPT-581** 86-WOPT-582
050420CBLK-1WN	4/21/05	Acetone Tetrachloroethene Trichloroethene	3.1 ug/L 0.21 ug/L 0.30 ug/L	86-WOPT-1091 86-WOPT-1092** 86-WOPT-1093 86-WOPT-1094 86-WOPT-1095** 86-WOPT-1096 86-WOPT-1097 86-WOPT-1098**

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
86-WOPT-578	Tetrachloroethene	0.21 ug/L	0.5U ug/L
86-WOPT-1091	Tetrachloroethene Trichloroethene	0.20 ug/L 0.22 ug/L	0.5U ug/L 0.5U ug/L
86-WOPT-1092**	Tetrachloroethene Trichloroethene	0.17 ug/L 1.4 ug/L	0.5U ug/L 1.4U ug/L
86-WOPT-1093	Tetrachloroethene Trichloroethene	0.17 ug/L 0.18 ug/L	0.5U ug/L 0.5U ug/L
86-WOPT-1094	Trichloroethene	0.20 ug/L	0.5U ug/L
86-WOPT-1095**	Acetone	1.9 ug/L	5U ug/L

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
86-WOPT-1096	Tetrachloroethene	0.20 ug/L	0.5U ug/L

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the SOW. All surrogate recoveries (%R) were within QC limits.

## VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were not within QC limits. Since the sample concentration was greater than the spiked concentration, no data were qualified.

## VIII. Laboratory Control Samples (LCS)

Although laboratory control samples were not required by the method, laboratory control samples were reported by the laboratory. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## IX. Regional Quality Assurance and Quality Control

Not applicable.

## X. Internal Standards

All internal standard areas and retention times were within QC limits.

## XI. Target Compound Identifications

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
86-WOPT-577** 86-WOPT-1095**	cis-1,2-Dichloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	A
86-WOPT-578	1,1-Dichloroethene cis-1,2-Dichloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects)	A
86-WOPT-579	cis-1,2-Dichloroethene Tetrachloroethene Trichloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects) J (all detects)	A
86-WOPT-580	1,1,2-Trichloro-1,2,2-trifluoroethane Trichloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects)	A
86-WOPT-581** 86-WOPT-582	1,1,2-Trichloro-1,2,2-trifluoroethane Tetrachloroethene Trichloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects) J (all detects)	A
86-WOPT-1096 86-WOPT-1097	cis-1,2-Dichloroethene Trichloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects)	A

Raw data were not evaluated for the samples reviewed by Level III criteria.

### XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

### XIV. System Performance

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

### XV. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### XVI. Field Duplicates

Samples 86-WOPT-1093 and 86-WOPT-1094 were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:



Compound	Concentration (ug/L)		RPD
	86-WOPT-1093	86-WOPT-1094	
1,1-Dichloroethane	3.8	3.2	17
cis-1,2-Dichloroethene	0.17	0.5U	Not calculable
Tetrachloroethene	0.17	0.5U	Not calculable
Trichloroethene	0.18	0.20	1

## XVII. Field Blanks

Samples 86-WOPT-576 and 86-WOPT-1091 were identified as trip blanks. No volatile contaminants were found in these blanks with the following exceptions:

Trip Blank ID	Compound	Concentration (ug/L)
86-WOPT-1091	Tetrachloroethene	0.20
	Trichloroethene	0.22

**Moffett Air Field, Building 88, CTO 86**  
**Volatiles - Data Qualification Summary - SDG 47204**

SDG	Sample	Compound	Flag	A or P	Reason
47204	86-WOPT-576 86-WOPT-577** 86-WOPT-578 86-WOPT-579 86-WOPT-580 86-WOPT-581** 86-WOPT-582 86-WOPT-1091 86-WOPT-1092** 86-WOPT-1093 86-WOPT-1094 86-WOPT-1095** 86-WOPT-1096 86-WOPT-1097 86-WOPT-1098**	Bromomethane	J (all detects) UJ (all non-detects)	A	Initial calibration (%RSD)
47204	86-WOPT-577** 86-WOPT-1095**	cis-1,2-Dichloroethene	J (all detects)	A	Compound quantitation and CRQLs
47204	86-WOPT-578	1,1-Dichloroethene cis-1,2-Dichloroethene	J (all detects) J (all detects)	A	Compound quantitation and CRQLs
47204	86-WOPT-579	cis-1,2-Dichloroethene Tetrachloroethene Trichloroethene	J (all detects) J (all detects) J (all detects)	A	Compound quantitation and CRQLs
47204	86-WOPT-580	1,1,2-Trichloro-1,2,2-trifluoroethane Trichloroethene	J (all detects) J (all detects)	A	Compound quantitation and CRQLs
47204	86-WOPT-581** 86-WOPT-582	1,1,2-Trichloro-1,2,2-trifluoroethane Tetrachloroethene Trichloroethene	J (all detects) J (all detects) J (all detects)	A	Compound quantitation and CRQLs
47204	86-WOPT-1096 86-WOPT-1097	cis-1,2-Dichloroethene Trichloroethene	J (all detects) J (all detects)	A	Compound quantitation and CRQLs

**Moffett Air Field, Building 88, CTO 86**  
**Volatiles - Laboratory Blank Data Qualification Summary - SDG 47204**

SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P
47204	86-WOPT-578	Tetrachloroethene	0.5U ug/L	A

SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P
47204	86-WOPT-1091	Tetrachloroethene Trichloroethene	0.5U ug/L 0.5U ug/L	A
47204	86-WOPT-1092**	Tetrachloroethene Trichloroethene	0.5U ug/L 1.4U ug/L	A
47204	86-WOPT-1093	Tetrachloroethene Trichloroethene	0.5U ug/L 0.5U ug/L	A
47204	86-WOPT-1094	Trichloroethene	0.5U ug/L	A
47204	86-WOPT-1095**	Acetone	5U ug/L	A
47204	86-WOPT-1096	Tetrachloroethene	0.5U ug/L	A

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Moffett Air Field, Building 88, CTO 86

**Collection Date:** April 20, 2005

**LDC Report Date:** May 25, 2005

**Matrix:** Water

**Parameters:** Metals

**Validation Level:** EPA Level III & IV

**Laboratory:** APPL, Inc.

**Sample Delivery Group (SDG):** 47204

### Sample Identification

86-WOPT-577**	86-WOPT-1096
86-WOPT-577DL**	86-WOPT-1096DL
86-WOPT-578	86-WOPT-1097
86-WOPT-578DL	86-WOPT-1097DL
86-WOPT-579	86-WOPT-1098**
86-WOPT-579DL	86-WOPT-1098DL**
86-WOPT-580	86-WOPT-1097MS
86-WOPT-580DL	86-WOPT-1097MSD
86-WOPT-581**	
86-WOPT-581DL**	
86-WOPT-582	
86-WOPT-582DL	
86-WOPT-1092**	
86-WOPT-1092DL**	
86-WOPT-1093	
86-WOPT-1093DL	
86-WOPT-1094	
86-WOPT-1094DL	
86-WOPT-1095**	
86-WOPT-1095DL**	

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 28 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 6010B for Metals. The metals analyzed were Calcium, Iron, Magnesium, Potassium, and Sodium.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

## III. Blanks

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Potassium	0.12 mg/L	86-WOPT-579 86-WOPT-1092** 86-WOPT-1095**
PB (prep blank)	Magnesium Sodium	0.013 mg/L 0.29 mg/L	86-WOPT-577** 86-WOPT-577DL** 86-WOPT-578 86-WOPT-578DL 86-WOPT-580 86-WOPT-580DL 86-WOPT-581** 86-WOPT-581DL** 86-WOPT-582 86-WOPT-582DL 86-WOPT-1093 86-WOPT-1093DL 86-WOPT-1094 86-WOPT-1094DL 86-WOPT-1096 86-WOPT-1096DL 86-WOPT-1097 86-WOPT-1097DL 86-WOPT-1098** 86-WOPT-1098DL**

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or were significantly greater ( >5X blank contaminants) than the concentrations found in the associated method blanks.

#### IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

#### V. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
86-WOPT-1097MS/MSD (86-WOPT-577** 86-WOPT-577DL** 86-WOPT-578 86-WOPT-580 86-WOPT-580DL 86-WOPT-581** 86-WOPT-581DL** 86-WOPT-582 86-WOPT-1093 86-WOPT-1094 86-WOPT-1096 86-WOPT-1097 86-WOPT-1098**)	Magnesium	64.0 (80-120)	50.4 (80-120)	-	J (all detects) UJ (all non-detects)	A

#### VI. Duplicate Sample Analysis

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

#### VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### VIII. Internal Standards

ICP-MS was not utilized in this SDG.

## IX. Furnace Atomic Absorption QC

Graphite furnace atomic absorption was not utilized in this SDG.

## X. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met.

## XI. Sample Result Verification

All sample result verification met validation criteria with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
86-WOPT-577** 86-WOPT-579	Calcium Iron Magnesium Sodium	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects) J (all detects) J (all detects)	A
86-WOPT-578	Calcium Iron Sodium	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects) J (all detects)	A
86-WOPT-580 86-WOPT-1092** 86-WOPT-1095**	Calcium Iron Magnesium	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects) J (all detects)	A
86-WOPT-581**	Calcium Magnesium	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects)	A
86-WOPT-582 86-WOPT-1093 86-WOPT-1094 86-WOPT-1096 86-WOPT-1097 86-WOPT-1098**	Calcium	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	A

Raw data were not evaluated for samples reviewed by Level III criteria.

## XII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## XIII. Field Duplicates

Samples 86-WOPT-1093 and 86-WOPT-1094 and samples 86-WOPT-1093DL and 86-WOPT-1094DL were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:



Compound	Concentration (mg/L)		RPD
	86-WOPT-1093	86-WOPT-1094	
Calcium	250	237	5
Iron	39.5	33.7	16
Magnesium	86.5	81.5	6
Potassium	6.3	7.4	16
Sodium	40.4	39.2	3

Compound	Concentration (mg/L)		RPD
	86-WOPT-1093DL	86-WOPT-1094DL	
Calcium	259	242	7

#### XIV. Field Blanks

No field blanks were identified in this SDG.

**Moffett Air Field, Building 88, CTO 86**  
**Metals - Data Qualification Summary - SDG 47204**

SDG	Sample	Analyte	Flag	A or P	Reason
47204	86-WOPT-577** 86-WOPT-577DL** 86-WOPT-578 86-WOPT-580 86-WOPT-580DL 86-WOPT-581** 86-WOPT-581DL** 86-WOPT-582 86-WOPT-1093 86-WOPT-1094 86-WOPT-1096 86-WOPT-1097 86-WOPT-1098**	Magnesium	J (all detects) UJ (all non-detects)	A	Matrix spike; Matrix spike duplicates (%R)
47204	86-WOPT-577** 86-WOPT-579	Calcium Iron Magnesium Sodium	J (all detects) J (all detects) J (all detects) J (all detects)	A	Sample result verification
47204	86-WOPT-578	Calcium Iron Sodium	J (all detects) J (all detects) J (all detects)	A	Sample result verification
47204	86-WOPT-580 86-WOPT-1092** 86-WOPT-1095**	Calcium Iron Magnesium	J (all detects) J (all detects) J (all detects)	A	Sample result verification
47204	86-WOPT-581**	Calcium Magnesium	J (all detects) J (all detects)	A	Sample result verification
47204	86-WOPT-582 86-WOPT-1093 86-WOPT-1094 86-WOPT-1096 86-WOPT-1097 86-WOPT-1098**	Calcium	J (all detects)	A	Sample result verification

**Moffett Air Field, Building 88, CTO 86**  
**Metals - Laboratory Blank Data Qualification Summary - SDG 47204**

No Sample Data Qualified in this SDG

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Moffett Air Field, Building 88, CTO 86

**Collection Date:** April 20, 2005

**LDC Report Date:** May 25, 2005

**Matrix:** Soil/Water

**Parameters:** Wet Chemistry

**Validation Level:** EPA Level III & IV

**Laboratory:** APPL, Inc./Columbia Analytical Services, Inc.

**Sample Delivery Group (SDG):** 47204/K2502950

### Sample Identification

86-WOPT-577**	86-WOPT-1092**	86-WOPT-1105
86-WOPT-577DL**	86-WOPT-1092DL**	86-WOPT-577MS
86-WOPT-578	86-WOPT-1093	86-WOPT-583DUP
86-WOPT-578DL	86-WOPT-1093DL	86-WOPT-1097MS
86-WOPT-579	86-WOPT-1094	86-WOPT-1097MSD
86-WOPT-579DL	86-WOPT-1094DL	
86-WOPT-580	86-WOPT-1095**	
86-WOPT-580DL	86-WOPT-1095DL**	
86-WOPT-581**	86-WOPT-1096	
86-WOPT-581DL**	86-WOPT-1096DL	
86-WOPT-582	86-WOPT-1097	
86-WOPT-582DL	86-WOPT-1097DL	
86-WOPT-583	86-WOPT-1098**	
86-WOPT-584	86-WOPT-1098DL**	
86-WOPT-585	86-WOPT-1099	
86-WOPT-586**	86-WOPT-1100	
86-WOPT-587	86-WOPT-1101**	
86-WOPT-588	86-WOPT-1102	
86-WOPT-589	86-WOPT-1103	
86-WOPT-590	86-WOPT-1104	

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 14 soil samples and 31 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 300.0 for Chloride, Nitrate, Nitrite, and Sulfate, EPA Method 310.1 for Carbonate and Bicarbonate, and Walkley-Black Method and EPA SW 846 Method 9060 for Total Organic Carbon.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section IX.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

### a. Initial Calibration

All criteria for the initial calibration of each method were met.

### b. Calibration Verification

Calibration verification frequency and analysis criteria were met for each method when applicable with the following exceptions:

Date	Lab. Reference/ID	Analyte	%R (Limits)	Associated Samples	Flag	A or P
5/18/05	CCV	Total organic carbon	86.8 (90-110)	86-WOPT-590 86-WOPT-1105	J (all detects) UU (all non-detects)	P

## III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the method blanks.

## IV. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spika ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
86-WOPT-1097MS/MSD 86-WOPT-577** 86-WOPT-577DL** 86-WOPT-578 86-WOPT-578DL 86-WOPT-579 86-WOPT-579DL 86-WOPT-580 86-WOPT-580DL 86-WOPT-581** 86-WOPT-581DL** 86-WOPT-582 86-WOPT-582DL 86-WOPT-1092** 86-WOPT-1092DL** 86-WOPT-1093 86-WOPT-1093DL 86-WOPT-1094 86-WOPT-1094DL 86-WOPT-1095** 86-WOPT-1095DL** 86-WOPT-1096 86-WOPT-1096DL 86-WOPT-1097 86-WOPT-1097DL 86-WOPT-1098** 86-WOPT-1098DL**)	Sulfate	79.3 (80-120)	78.7 (80-120)	-	J (all detects) UJ (all non-detects)	A

## V. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## VI. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VII. Sample Result Verification

All sample result verification met validation criteria with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
86-WOPT-577** 86-WOPT-578 86-WOPT-579 86-WOPT-580 86-WOPT-581** 86-WOPT-582 86-WOPT-1092** 86-WOPT-1093 86-WOPT-1094 86-WOPT-1095** 86-WOPT-1096 86-WOPT-1097 86-WOPT-1098**	Sulfate	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	A

Raw data were not evaluated for the samples reviewed by Level III criteria.

### VIII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### IX. Field Duplicates

Samples 86-WOPT-1093 and 86-WOPT-1094 and samples 86-WOPT-1093DL and 86-WOPT-1094DL were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration		RPD
	86-WOPT-1093	86-WOPT-1094	
Chloride	41600 ug/L	42200 ug/L	1
Nitrate	2430 ug/L	2410 ug/L	1
Sulfate	488000 ug/L	490000 ug/L	0
Bicarbonate	334 mg/L	332 mg/L	1

Analyte	Concentration (ug/L)		RPD
	86-WOPT-1093DL	86-WOPT-1094DL	
Sulfate	411000	411000	0

## X. Field Blanks

Samples 86-WOPT-590 and 86-WOPT-1105 were identified as equipment rinsates. No contaminant concentrations were found in these blanks with the following exceptions:

Equipment Rinsate ID	Analyte	Concentration (mg/L)
86-WOPT-590	Total organic carbon	0.77
86-WOPT-1105	Total organic carbon	0.71

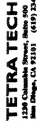


**Moffett Air Field, Building 88, CTO 86**  
**Wet Chemistry - Data Qualification Summary - SDG 47204/K2502950**

SDG	Sample	Analyte	Flag	A or P	Reason
47204/ K2502950	86-WOPT-590 86-WOPT-1105	Total organic carbon	J (all detects) UJ (all non-detects)	P	Calibration (%R)
47204/ K2502950	86-WOPT-577** 86-WOPT-577DL** 86-WOPT-578 86-WOPT-578DL 86-WOPT-579 86-WOPT-579DL 86-WOPT-580 86-WOPT-580DL 86-WOPT-581** 86-WOPT-581DL** 86-WOPT-582 86-WOPT-582DL 86-WOPT-1092** 86-WOPT-1092DL** 86-WOPT-1093 86-WOPT-1093DL 86-WOPT-1094 86-WOPT-1094DL 86-WOPT-1095** 86-WOPT-1095DL** 86-WOPT-1096 86-WOPT-1096DL 86-WOPT-1097 86-WOPT-1097DL 86-WOPT-1098** 86-WOPT-1098DL**	Sulfate	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicates (%R)
47204/ K2502950	86-WOPT-577** 86-WOPT-578 86-WOPT-579 86-WOPT-580 86-WOPT-581** 86-WOPT-582 86-WOPT-1092** 86-WOPT-1093 86-WOPT-1094 86-WOPT-1095** 86-WOPT-1096 86-WOPT-1097 86-WOPT-1098**	Sulfate	J (all detects)	A	Sample result verification

**Moffett Air Field, Building 88, CTO 86**  
**Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG**  
**47204/K2502950**

No Sample Data Qualified in this SDG



**TETRA TECH**  
1230 Columbia Street, Suite 500  
San Diego, CA 92101 (619) 234-8606

**NUMBER** 10766

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management

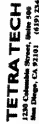
0047219-11)



## CHAIN-OF-CUSTODY RECORD

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management

0747-18-12



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0049718-1



**TETRA TECH**  
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CHAIN-OF-CUSTODY RECORD

NUMBER 10387

PROJECT NAME		PURCHASE ORDER NO.		PROJECT NO.		LABORATORY NAME		Project Information Section					
PROJECT LOCATION		PROJECT NO.		LABORATORY ID		LABORATORY ID (FOR LABORATORY)		Do not submit to Laboratory					
SAMPLER NAME		SAMPLER NO.		LABORATORY ID		LABORATORY ID (FOR LABORATORY)							
PROJECT CONTACT		PROJECT CONTACT PHONE NUMBER		LABORATORY ID		LABORATORY ID (FOR LABORATORY)							
SAMPLE ID		DATE COLLECTED		TIME COLLECTED		NO OF CONTAINERS		ANALYSES REQUIRED					
		LEVEL		T		T							
		3		4		5							
26-WOPT-1112	4/21/05	1055	S	X	5	24	X	X	CPT-88-17	9	10	24	28
26-WOPT-1113	4/21/05	1101	S	X	5	24	X	X	CPT-88-17	14	15	28	28
26-WOPT-1114	4/21/05	1110	S	X	5	24	X	X	CPT-88-17	20	21	28	28
26-WOPT-1115	4/21/05	1118	4	X	5	24	X	X	CPT-88-17	23	24	28	28
26-WOPT-1116	4/21/05	1139	S	X	5	24	X	X	CPT-88-17	30	31	28	28
26-WOPT-1117	4/21/05	1157	S	X	5	24	X	X	CPT-88-17	37	38	28	28
26-WOPT-1118	4/21/05	1405	4	X	5	24	X	X	Equipment Rinsed	-	-	-	-
LABORATORY INSTRUCTIONS/COMMENTS										SAMPLING COMMENT:			
TCC analysis on 10 day TAT										88g-88 CPT (5011)			
COMPOSITE DESCRIPTION													
SAMPLE CONDITION UPON RECEIPT (FOR LABORATORY)													
TEMPERATURE: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN													
COOLER SEAL: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN													
RELINQUISHED BY (Signature)													
DATE													
TIME													
COMPANY													
RELINQUISHED BY (Signature)													
DATE													
TIME													
COMPANY													

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management

Data Validation Package  
for  
Moffett Air Field, WATS Building 88, CTO 86  
ARF 47219

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## Case Narrative

ARF: 47219

Project: 1990.086D WATS Bldg 88 Moffett Airfield

State Certification Number: CA1312

Results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

### Sample Receipt Information:

The sample group was received April 21, 2005, at 3.5°C and 4.0°C. The samples were assigned Analytical Request Form (ARF) number 47219. The sample numbers and requested analyses were compared to the chains of custody. The soil TOC analysis was sub-contracted to Columbia Analytical Laboratory. No exception was noted.

Sample Table

CLIENT ID	APPL ID	Matrix	Date Sampled	Date Received
86-WOPT-591	AX18372	WATER	4/21/05	4/21/05
86-WOPT-592	AX18373	WATER	4/21/05	4/21/05
86-WOPT-593	AX18374	WATER	4/21/05	4/21/05
86-WOPT-594	AX18375	WATER	4/21/05	4/21/05
86-WOPT-595	AX18376	WATER	4/21/05	4/21/05
86-WOPT-596	AX18377	WATER	4/21/05	4/21/05
86-WOPT-597	AX18378	SOIL	4/21/05	4/21/05
86-WOPT-598	AX18379	SOIL	4/21/05	4/21/05
86-WOPT-599	AX18380	SOIL	4/21/05	4/21/05
86-WOPT-600	AX18381	SOIL	4/21/05	4/21/05
86-WOPT-601	AX18382	WATER	4/21/05	4/21/05
86-WOPT-1106	AX18383	WATER	4/21/05	4/21/05
86-WOPT-1107	AX18384	WATER	4/21/05	4/21/05
86-WOPT-1108	AX18385	WATER	4/21/05	4/21/05
86-WOPT-1109	AX18386	WATER	4/21/05	4/21/05
86-WOPT-1110	AX18387	WATER	4/21/05	4/21/05
86-WOPT-1111	AX18388	WATER	4/21/05	4/21/05
86-WOPT-1112	AX18389	SOIL	4/21/05	4/21/05
86-WOPT-1113	AX18390	SOIL	4/21/05	4/21/05
86-WOPT-1114	AX18391	SOIL	4/21/05	4/21/05
86-WOPT-1115	AX18392	SOIL	4/21/05	4/21/05
86-WOPT-1116	AX18393	SOIL	4/21/05	4/21/05
86-WOPT-1117	AX18394	SOIL	4/21/05	4/21/05
86-WOPT-1118	AX18395	WATER	4/21/05	4/21/05

# **EPA Method 8260B and CLP Volatiles**

## **Volatile Organic Analysis**

### **Sample Preparation:**

The samples were purged according to EPA method 5030B, 5035, and CLP. All holding times were met.

### **Sample Analysis Information:**

The samples were analyzed according to the method using a Hewlett Packard Gas Chromatograph with a mass spectrometer detector. The sample pH were taken after analysis. Sample 86-WOPT-1107 had a pH of 4, sample 86-WOPT-1110 had a pH of 7, and sample 86-WOPT-1111 had a pH of 6.

### **Quality Control/Assurance**

#### **Calibrations:**

Initial and continuing calibrations were performed according to the method. For the continuing calibration verification performed on Neo file ID: 0421N22W.D, Chloroethane had a 45%D. For the continuing calibration verification performed on Sweetpea file ID: 0422S02.D, Acetone had a 65%D. All other calibration criteria were met.

#### **Blanks:**

For the 050421AC method blank, Methylene chloride was detected below the reporting limit but above the MDL at 22µg/kg. Methylene chloride was not detected above the MDL in the associated samples. For the 050422AS method blank, Acetone was detected above the reporting limit at 6.7µg/L. Acetone was not detected in the associated samples. No other target analyte was detected above the reporting limits in the method blanks.

#### **Spikes:**

Laboratory Control Spikes (LCS) were used for quality assurance. A second-source standard was used for the LCS. All spike and second-source criteria were met.

Samples 86-WOPT-597 and 86-WOPT-1109 were designated by the client for MS/MSD analysis. For the MS on sample 86-WOPT-597, Trichloroethene recovered above the 135% control limits at 189% and had an 34.5% RPD for the MS/MSD. For the MS/MSD performed on sample 86-WOPT-1109, 1,1-Dichloroethene recovered below the 75% lower control limit at 52.0% and 47.0% and Trichloroethene recovered below the 71% lower control limit at -360% and -380%.

#### **Surrogates**

Toluene-d8 recovered above the 125% upper control limit for the following samples: The 050421C Method blank at 134%, 86-WOPT-591 at 127%, 86-WOPT-1106 at 130%, and 86-WOPT-594 at 127%. All other surrogate recoveries were within control limits.

#### **Tuning:**

The instrument was tuned using BFB. All method criteria were met.



### **Internal Standards**

The internal standard area counts were compared to the mid-point of the initial calibration according to method 8260. The internal standard area counts were compared to the continuing calibration according to CLP. All method criteria were met.

### **Summary:**

No additional problem was encountered.

# **EPA Methods 6010B**

## **Metals**

### **Digestion Information:**

The water was digested according to EPA methods 3010A. No exceptions were encountered. All holding times were met.

### **Analysis Information:**

#### **Samples:**

The sample was analyzed for dissolved metals according to EPA method 6010B using a Perkin Elmer Optima 4300DV.

#### **Calibrations:**

Calibrations were performed according to the methods for the initial calibration and the initial calibration verification. The initial calibration verification is prepared from a second source standard.

#### **Blanks:**

Calcium was detected below the reporting limit but above the MDL in the 050427A method blank at 0.039mg/L. Sodium was detected below the reporting limit but above the MDL in the 050427A method blank at 0.24mg/L. Calcium and Potassium were detected below the reporting limit but above the MDL in the 050506A method blank at 0.030mg/L and 0.11 mg/L respectively. No other target metal was detected above the reporting limits in the method blank.

#### **Spikes:**

Laboratory Control Spikes (LCS/LCSD) were used for quality assurance. LCS recoveries were within acceptance limits.

Sample 86-WOPT-1109 was designated by the client for MS/MSD analysis. For the MS/MSD, Calcium recovered outside of the 80%-120% control limits at 184% and -140%, Iron recovered below the 80% lower control limit at -380% and -2340%, Magnesium recovered outside of the 80%-120% control limit at 164% and -120%, and Potassium recovered below the 80% lower control limit at 380% in the MSD. All other recoveries met acceptance criteria.

### **Summary:**

No analytical exception is noted. All data are acceptable.

# **EPA Methods 300.0, 310.1 and 9060A**

## **Anions, Carbonates & Bi-carbonates and Total Organic Carbon**

### **Sample Preparation Information:**

A Dionex DX500 ion chromatograph was used for the EPA 300.0 analysis. The TOC was analyzed using a Shimadzu TOC-5050A instrument. The samples were screened down to the MDL.

### **Analysis Information:**

#### **Samples:**

The sample was analyzed according to the methods. A Dionex DX500 ion chromatograph was used for the EPA 300.0 analysis.

#### **Calibrations:**

Calibrations were performed according to the methods for the initial calibration and the initial calibration verification. The initial calibration verification is prepared from a second source standard.

#### **Blanks:**

No target analyte was detected above the reporting limits in the method blanks.

#### **Spikes:**

Laboratory Control Spikes (LCS/LCSD) and Sample Duplicates were used for quality assurance. All recoveries met acceptance criteria.

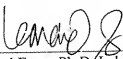
Sample 86-WOPT-1109 was designated by the client for MS/MSD analysis. For the MS/MSD, Sulfate recovered below the 80% lower control limit at 75.0% and 75.0%. All other recoveries met acceptance criteria.

### **Summary:**

No analytical exception is noted.

## CERTIFICATION

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the hard copy has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

 5/20/08  
\_\_\_\_\_  
Leonard Fong, Ph.D. / Laboratory Director / Date

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47219

Sample ID: 86-WOPT-591

APPL ID: AX18372

Sample Collection Date: 4/21/05

CCG: \$C42VT-050421AN-86001

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/22/05	4/22/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/22/05	4/22/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	0.5	0.21	ug/L	4/22/05	4/22/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/22/05	4/22/05
CLP VOL	1,1-Dichloroethane	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	1,1-Dichloroethene	Not detected	0.5	0.30	ug/L	4/22/05	4/22/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/22/05	4/22/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/22/05	4/22/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/22/05	4/22/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/22/05	4/22/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/22/05	4/22/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/22/05	4/22/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/22/05	4/22/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/22/05	4/22/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/22/05	4/22/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/22/05	4/22/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/22/05	4/22/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/22/05	4/22/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/22/05	4/22/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/22/05	4/22/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	4/22/05	4/22/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/22/05	4/22/05
CLP VOL	cis-1,2-Dichloroethene	Not detected	0.5	0.16	ug/L	4/22/05	4/22/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/22/05	4/22/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/22/05	4/22/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/22/05	4/22/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/22/05	4/22/05

# = Recovery (or RPD) is outside QC limits.

Run #: 0421N13  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 1  
Initials: LF

Printed: 5/5/05 9 48 56 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Blenkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-591

Sample Collection Date: 4/21/05

ARF: 47219

APPL ID: AX18372

QCG: \$C42VT-050421AN-86001

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	Not detected	0.5	0.15	ug/L	4/22/05	4/22/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/22/05	4/22/05
CLP VOL	trans-1,2-Dichloroethene	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/22/05	4/22/05
CLP VOL	Trichloroethene	Not detected	0.5	0.16	ug/L	4/22/05	4/22/05
CLP VOL	Vinyl Chloride	Not detected	0.5	0.23	ug/L	4/22/05	4/22/05
CLP VOL	Surrogate Recovery (BFB)	118	75-125		%	4/22/05	4/22/05
CLP VOL	Surrogate Recovery (DCA)	128	62-139		%	4/22/05	4/22/05
CLP VOL	Surrogate Recovery (TOL)	127 #	75-125		%	4/22/05	4/22/05

# = Recovery (or RPD) is outside QC limits.

Run #: 0421N13  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 1  
Initials: LF

Printed: 5/5/05 9:48:56 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47219

Sample ID: 86-WOPT-592

APPL ID: AX18373

Sample Collection Date: 4/21/05

QCG: \$C42VT-050421AN-86001

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/22/05	4/22/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/22/05	4/22/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	1.6	0.5	0.21	ug/L	4/22/05	4/22/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/22/05	4/22/05
CLP VOL	1,1-Dichloroethane	11	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	1,1-Dichloroethene	8.5	0.5	0.30	ug/L	4/22/05	4/22/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/22/05	4/22/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/22/05	4/22/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/22/05	4/22/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/22/05	4/22/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/22/05	4/22/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/22/05	4/22/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/22/05	4/22/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/22/05	4/22/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/22/05	4/22/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/22/05	4/22/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/22/05	4/22/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/22/05	4/22/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/22/05	4/22/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/22/05	4/22/05
CLP VOL	Chloroform	0.56	0.5	0.16	ug/L	4/22/05	4/22/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/22/05	4/22/05
CLP VOL	cis-1,2-Dichloroethene	170 E	0.5	0.16	ug/L	4/22/05	4/22/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/22/05	4/22/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/22/05	4/22/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/22/05	4/22/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/22/05	4/22/05

E = The reported value exceeds linear range.

Run #: 0421N15  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 1  
Initials: LF

Printed: 5/5/05 9:48:56 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-592

Sample Collection Date: 4/21/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47219

APPL ID: AX18373

QCG: SC42VT-050421AN-86001

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	Not detected	0.5	0.15	ug/L	4/22/05	4/22/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/22/05	4/22/05
CLP VOL	trans-1,2-Dichloroethene	1.8	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/22/05	4/22/05
CLP VOL	Trichloroethene	82	0.5	0.16	ug/L	4/22/05	4/22/05
CLP VOL	Vinyl Chloride	0.64	0.5	0.23	ug/L	4/22/05	4/22/05
CLP VOL	Surrogate Recovery (BFB)	113	75-125		%	4/22/05	4/22/05
CLP VOL	Surrogate Recovery (DCA)	131	62-139		%	4/22/05	4/22/05
CLP VOL	Surrogate Recovery (TOL)	122	75-125		%	4/22/05	4/22/05

E = The reported value exceeds linear range.

Run #: 0421N15  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 1  
Initials: LF

Printed: 5/5/05 9:48 56 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



## CLP Volatiles Water

Tetra Tech: FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-592

Sample Collection Date: 4/21/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47219

APPL ID: AX18373

QCG: SC42VD-050424AN-86963

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	260	10	3.20	ug/L	4/25/05	4/25/05
CLP VOL	Surrogate Recovery (BFB)	108	75-125		%	4/25/05	4/25/05
CLP VOL	Surrogate Recovery (DCA)	101	62-139		%	4/25/05	4/25/05
CLP VOL	Surrogate Recovery (TOL)	95.9	75-125		%	4/25/05	4/25/05

Run #: 0424N12  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 20  
Initials: LF

Printed: 5/18/05 8:59:02 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47219

Sample ID: 86-WOPT-593

APPL ID: AX18374

Sample Collection Date: 4/21/05

QCG: SC42VT-050421AN-86001

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	0.91	0.5	0.14	ug/L	4/22/05	4/22/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/22/05	4/22/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	25	0.5	0.21	ug/L	4/22/05	4/22/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/22/05	4/22/05
CLP VOL	1,1-Dichloroethane	14	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	1,1-Dichloroethene	22	0.5	0.30	ug/L	4/22/05	4/22/05
CLP VOL	1,2-Dichloroethane	1.3	0.5	0.14	ug/L	4/22/05	4/22/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/22/05	4/22/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/22/05	4/22/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/22/05	4/22/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/22/05	4/22/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/22/05	4/22/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/22/05	4/22/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/22/05	4/22/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/22/05	4/22/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/22/05	4/22/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/22/05	4/22/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/22/05	4/22/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/22/05	4/22/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/22/05	4/22/05
CLP VOL	Chloroform	0.25 J	0.5	0.16	ug/L	4/22/05	4/22/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/22/05	4/22/05
CLP VOL	cis-1,2-Dichloroethene	410 E	0.5	0.16	ug/L	4/22/05	4/22/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/22/05	4/22/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/22/05	4/22/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	Methyl tert-Butyl Ether	1.2	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/22/05	4/22/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/22/05	4/22/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0421N16  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 1  
Initials: LF

Printed: 5/20/05 11:17:25 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47219

Sample ID: 86-WOPT-593

APPL ID: AX18374

Sample Collection Date: 4/21/05

QCG: SC42VT-050421AN-86001

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	7.1	0.5	0.15	ug/L	4/22/05	4/22/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/22/05	4/22/05
CLP VOL	trans-1,2-Dichloroethene	2.9	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/22/05	4/22/05
CLP VOL	Trichloroethene	830 E	0.5	0.16	ug/L	4/22/05	4/22/05
CLP VOL	Vinyl Chloride	1.6	0.5	0.23	ug/L	4/22/05	4/22/05
CLP VOL	Surrogate Recovery (BFB)	110	75-125		%	4/22/05	4/22/05
CLP VOL	Surrogate Recovery (DCA)	129	62-139		%	4/22/05	4/22/05
CLP VOL	Surrogate Recovery (TOL)	122	75-125		%	4/22/05	4/22/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0421N16  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 1  
Initials: LF

Printed: 5/20/05 11:17:25 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-593

Sample Collection Date: 4/21/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47219

APPL ID: AX18374

QCG: SC42VD-050424AN-86963

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	480	40	12.80	ug/L	4/25/05	4/25/05
CLP VOL	Trichloroethene	1100	40	12.80	ug/L	4/25/05	4/25/05
CLP VOL	Surrogate Recovery (BFB)	108	75-125		%	4/25/05	4/25/05
CLP VOL	Surrogate Recovery (DCA)	110	62-139		%	4/25/05	4/25/05
CLP VOL	Surrogate Recovery (TOL)	97.5	75-125		%	4/25/05	4/25/05

Run #: 0424N13  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 80  
Initials: LF

Printed: 5/18/05 8:59:03 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 85 Moffett Airfield

ARF: 47219

Sample ID: 86-WOPT-594

APPL ID: AX18375

Sample Collection Date: 4/21/05

QCG: SC42VT-050421AN-86001

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	0.91	0.5	0.14	ug/L	4/22/05	4/22/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/22/05	4/22/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	25	0.5	0.21	ug/L	4/22/05	4/22/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/22/05	4/22/05
CLP VOL	1,1-Dichloroethane	14	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	1,1-Dichloroethane	21	0.5	0.30	ug/L	4/22/05	4/22/05
CLP VOL	1,2-Dichloroethane	1.3	0.5	0.14	ug/L	4/22/05	4/22/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/22/05	4/22/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/22/05	4/22/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/22/05	4/22/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/22/05	4/22/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/22/05	4/22/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/22/05	4/22/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/22/05	4/22/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/22/05	4/22/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/22/05	4/22/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/22/05	4/22/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/22/05	4/22/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/22/05	4/22/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/22/05	4/22/05
CLP VOL	Chloroform	0.26 J	0.5	0.16	ug/L	4/22/05	4/22/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/22/05	4/22/05
CLP VOL	cis-1,2-Dichloroethene	410 E	0.5	0.16	ug/L	4/22/05	4/22/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/22/05	4/22/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/22/05	4/22/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	Methyl tert-Butyl Ether	1.2	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/22/05	4/22/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/22/05	4/22/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.  
# = Recovery (or RPD) is outside QC limits.

Run #: 0421N17  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 1  
Initials: LF

Printed: 5/5/05 9:48:56 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-594

Sample Collection Date: 4/21/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47219

APPL ID: AX18375

OCG: SC42VT-050421AN-86001

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	7.3	0.5	0.15	ug/L	4/22/05	4/22/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/22/05	4/22/05
CLP VOL	trans-1,2-Dichloroethene	2.9	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/22/05	4/22/05
CLP VOL	Trichloroethene	830 E	0.5	0.16	ug/L	4/22/05	4/22/05
CLP VOL	Vinyl Chloride	1.5	0.5	0.23	ug/L	4/22/05	4/22/05
CLP VOL	Surrogate Recovery (BFB)	115	75-125		%	4/22/05	4/22/05
CLP VOL	Surrogate Recovery (DCA)	131	62-139		%	4/22/05	4/22/05
CLP VOL	Surrogate Recovery (TOL)	127 #	75-125		%	4/22/05	4/22/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.  
# = Recovery (or RPD) is outside QC limits.

Run #: 0421N17  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 1  
Initials: LF

Printed: 5/5/05 9:48:56 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-594**

Sample Collection Date: 4/21/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47219

**APPL ID: AX18375**

QCG: SC42VD-050424AN-86963

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	480	40	12.80	ug/L	4/25/05	4/25/05
CLP VOL	Trichloroethene	1100	40	12.80	ug/L	4/25/05	4/25/05
CLP VOL	Surrogate Recovery (BFB)	115	75-125		%	4/25/05	4/25/05
CLP VOL	Surrogate Recovery (DCA)	108	62-139		%	4/25/05	4/25/05
CLP VOL	Surrogate Recovery (TOL)	107	75-125		%	4/25/05	4/25/05

Run #: 0424N14  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 80  
Initials: LF

Printed 5/18/05 8:59:03 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

ARF: 47219

Sample ID: 86-WOPT-595

APPL ID: AX18376

Sample Collection Date: 4/21/05

OCG: SC42VT-050421AN-86001

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	1.0	0.5	0.14	ug/L	4/22/05	4/22/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/22/05	4/22/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	36	0.5	0.21	ug/L	4/22/05	4/22/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/22/05	4/22/05
CLP VOL	1,1-Dichloroethane	20	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	1,1-Dichloroethene	32	0.5	0.30	ug/L	4/22/05	4/22/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/22/05	4/22/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/22/05	4/22/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/22/05	4/22/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/22/05	4/22/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/22/05	4/22/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/22/05	4/22/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/22/05	4/22/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/22/05	4/22/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/22/05	4/22/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/22/05	4/22/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/22/05	4/22/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/22/05	4/22/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/22/05	4/22/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/22/05	4/22/05
CLP VOL	Chloroform	0.33 J	0.5	0.16	ug/L	4/22/05	4/22/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/22/05	4/22/05
CLP VOL	cis-1,2-Dichloroethene	420 E	0.5	0.16	ug/L	4/22/05	4/22/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/22/05	4/22/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/22/05	4/22/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	Methyl tert-Butyl Ether	0.45 J	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/22/05	4/22/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/22/05	4/22/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0421N18  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 1  
Initials: LF

Printed: 5/5/05 9:48:56 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-595

Sample Collection Date: 4/21/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47219

APPL ID: AX18376

QCG: SC42VT-050421AN-86001

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	8.1	0.5	0.15	ug/L	4/22/05	4/22/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/22/05	4/22/05
CLP VOL	trans-1,2-Dichloroethene	2.6	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/22/05	4/22/05
CLP VOL	Trichloroethene	1100 E	0.5	0.16	ug/L	4/22/05	4/22/05
CLP VOL	Vinyl Chloride	1.8	0.5	0.23	ug/L	4/22/05	4/22/05
CLP VOL	Surrogate Recovery (BFB)	108	75-125		%	4/22/05	4/22/05
CLP VOL	Surrogate Recovery (DCA)	128	62-139		%	4/22/05	4/22/05
CLP VOL	Surrogate Recovery (TOL)	120	75-125		%	4/22/05	4/22/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0421N18  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 1  
Initials: LF

Printed: 5/5/05 9:48:56 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-595

Sample Collection Date: 4/21/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47219

APPL ID: AX18376

QCG: SC42VD-050424AN-86963

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	320	20	6.40	ug/L	4/25/05	4/25/05
CLP VOL	Trichloroethene	1290	20	6.40	ug/L	4/25/05	4/25/05
CLP VOL	Surrogate Recovery (BFB)	121	75-125		%	4/25/05	4/25/05
CLP VOL	Surrogate Recovery (DCA)	101	62-139		%	4/25/05	4/25/05
CLP VOL	Surrogate Recovery (TOL)	106	75-125		%	4/25/05	4/25/05

Run #: 0424N15  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 40  
Initials: LF

Printed 5/18/05 8:59:03 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

ARF: 47219

Sample ID: 86-WOPT-596

APPL ID: AX18377

Sample Collection Date: 4/21/05

QCG: SC42VT-050421BN-86003

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	1.2	0.5	0.14	ug/L	4/22/05	4/22/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/22/05	4/22/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	56 E	0.5	0.21	ug/L	4/22/05	4/22/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/22/05	4/22/05
CLP VOL	1,1-Dichloroethane	19	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	1,1-Dichloroethane	40	0.5	0.30	ug/L	4/22/05	4/22/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/22/05	4/22/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/22/05	4/22/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/22/05	4/22/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/22/05	4/22/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/22/05	4/22/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/22/05	4/22/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/22/05	4/22/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/22/05	4/22/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/22/05	4/22/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/22/05	4/22/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/22/05	4/22/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/22/05	4/22/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/22/05	4/22/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/22/05	4/22/05
CLP VOL	Chloroform	0.43 J	0.5	0.16	ug/L	4/22/05	4/22/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/22/05	4/22/05
CLP VOL	cis-1,2-Dichloroethene	360 E	0.5	0.16	ug/L	4/22/05	4/22/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/22/05	4/22/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/22/05	4/22/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/22/05	4/22/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/22/05	4/22/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0421N26  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 1  
Initials: LF

Printed: 5/5/05 9:48 56 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-596

Sample Collection Date: 4/21/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47219

APPL ID: AX18377

QCG: SC42VT-050421BN-86003

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	2.7	0.5	0.15	ug/L	4/22/05	4/22/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/22/05	4/22/05
CLP VOL	trans-1,2-Dichloroethene	1.6	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/22/05	4/22/05
CLP VOL	Trichloroethene	1400 E	0.5	0.16	ug/L	4/22/05	4/22/05
CLP VOL	Vinyl Chloride	0.98	0.5	0.23	ug/L	4/22/05	4/22/05
CLP VOL	Surrogate Recovery (BFB)	101	75-125		%	4/22/05	4/22/05
CLP VOL	Surrogate Recovery (DCA)	94.6	62-139		%	4/22/05	4/22/05
CLP VOL	Surrogate Recovery (TOL)	103	75-125		%	4/22/05	4/22/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0421N26  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 1  
Initials: LF

Printed 5/5/05 9:48:56 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-596

Sample Collection Date: 4/21/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47219

APPL ID: AX18377

QCG: SC42VD-050424AN-86963

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	17 J	20	8.40	ug/L	4/25/05	4/25/05
CLP VOL	cis-1,2-Dichloroethene	230	20	6.40	ug/L	4/25/05	4/25/05
CLP VOL	Trichloroethene	1200	20	6.40	ug/L	4/25/05	4/25/05
CLP VOL	Surrogate Recovery (BFB)	115	75-125		%	4/25/05	4/25/05
CLP VOL	Surrogate Recovery (DCA)	106	62-139		%	4/25/05	4/25/05
CLP VOL	Surrogate Recovery (TOL)	102	75-125		%	4/25/05	4/25/05

J = Estimated value, below quantitation limit.

Run #: 0424N16  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 40  
Initials: LF

Printed 5/18/05 8:59 03 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47219

Sample ID: 86-WOPT-597

APPL ID: AX18378

Sample Collection Date: 4/21/05

CCG: \$86TTS-050421AC-66005

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 16.6 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	0.97	ug/Kg	4/22/05	4/22/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.5	ug/Kg	4/22/05	4/22/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.58	ug/Kg	4/22/05	4/22/05
EPA 8260B	1,1-Dichloroethane	Not detected	6	1.4	ug/Kg	4/22/05	4/22/05
EPA 8260B	1,1-Dichloroethene	2.3 J	6	0.95	ug/Kg	4/22/05	4/22/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.86	ug/Kg	4/22/05	4/22/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.74	ug/Kg	4/22/05	4/22/05
EPA 8260B	2-Butanone	Not detected	60	0.85	ug/Kg	4/22/05	4/22/05
EPA 8260B	2-Hexanone	Not detected	60	0.19	ug/Kg	4/22/05	4/22/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	60	1.1	ug/Kg	4/22/05	4/22/05
EPA 8260B	Acetone	Not detected	120	3.4	ug/Kg	4/22/05	4/22/05
EPA 8260B	Benzene	Not detected	6	0.76	ug/Kg	4/22/05	4/22/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.83	ug/Kg	4/22/05	4/22/05
EPA 8260B	Bromoform	Not detected	6	0.96	ug/Kg	4/22/05	4/22/05
EPA 8260B	Bromomethane	Not detected	12	1.9	ug/Kg	4/22/05	4/22/05
EPA 8260B	Carbon disulfide	Not detected	6	1.3	ug/Kg	4/22/05	4/22/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.96	ug/Kg	4/22/05	4/22/05
EPA 8260B	Chlorobenzene	Not detected	6	0.59	ug/Kg	4/22/05	4/22/05
EPA 8260B	Chloroethane	Not detected	6	1.9	ug/Kg	4/22/05	4/22/05
EPA 8260B	Chloroform	Not detected	6	1.7	ug/Kg	4/22/05	4/22/05
EPA 8260B	Chloromethane	Not detected	6	2.2	ug/Kg	4/22/05	4/22/05
EPA 8260B	cis-1,2-Dichloroethene	59	6	1.3	ug/Kg	4/22/05	4/22/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.56	ug/Kg	4/22/05	4/22/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.0	ug/Kg	4/22/05	4/22/05
EPA 8260B	Ethylbenzene	Not detected	6	0.77	ug/Kg	4/22/05	4/22/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/22/05	4/22/05
EPA 8260B	Methylene chloride	Not detected	60	5.5	ug/Kg	4/22/05	4/22/05
EPA 8260B	Styrene	Not detected	6	0.83	ug/Kg	4/22/05	4/22/05
EPA 8260B	Tetrachloroethene	1.1 J	6	0.65	ug/Kg	4/22/05	4/22/05
EPA 8260B	Toluene	Not detected	6	0.78	ug/Kg	4/22/05	4/22/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.6	ug/Kg	4/22/05	4/22/05

J = Estimated value, below quantitation limit.

Run #: 0421C16  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed: 5/5/05 9:48:56 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47219

Sample ID: 86-WOPT-597

APPL ID: AX18378

Sample Collection Date: 4/21/05

QCG: \$86TTS-050421AC-86005

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.52	ug/Kg	4/22/05	4/22/05
EPA 8260B	Trichloroethene	95	6	0.85	ug/Kg	4/22/05	4/22/05
EPA 8260B	Vinyl Acetate	Not detected	60	1.2	ug/Kg	4/22/05	4/22/05
EPA 8260B	Vinyl chloride	Not detected	6	2.0	ug/Kg	4/22/05	4/22/05
EPA 8260B	Xylenes	Not detected	18	0.82	ug/Kg	4/22/05	4/22/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	112	52-149		%	4/22/05	4/22/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	96.3	65-135		%	4/22/05	4/22/05
EPA 8260B	Surrogate recovery: Toluene-d8	92.8	65-135		%	4/22/05	4/22/05

J = Estimated value, below quantitation limit.

Run #: 0421C16  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed: 5/5/05 9:48:56 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47219

Sample ID: 86-WOPT-598

APPL ID: AX18379

Sample Collection Date: 4/21/05

CCG: \$86TTS-050421AC-86005

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 24.4 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	7	1.1	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	7	1.6	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	7	0.63	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,1-Dichloroethane	Not detected	7	1.5	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,1-Dichloroethene	2.3 J	7	1.0	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,2-Dichloroethane	Not detected	7	0.95	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,2-Dichloropropane	Not detected	7	0.82	ug/Kg	4/21/05	4/21/05
EPA 8260B	2-Butanone	Not detected	66	0.94	ug/Kg	4/21/05	4/21/05
EPA 8260B	2-Hexanone	Not detected	66	0.21	ug/Kg	4/21/05	4/21/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	66	1.2	ug/Kg	4/21/05	4/21/05
EPA 8260B	Acetone	Not detected	130	3.7	ug/Kg	4/21/05	4/21/05
EPA 8260B	Benzene	Not detected	7	0.83	ug/Kg	4/21/05	4/21/05
EPA 8260B	Bromodichloromethane	Not detected	7	0.91	ug/Kg	4/21/05	4/21/05
EPA 8260B	Bromoform	Not detected	7	1.1	ug/Kg	4/21/05	4/21/05
EPA 8260B	Bromomethane	Not detected	13	2.1	ug/Kg	4/21/05	4/21/05
EPA 8260B	Carbon disulfide	Not detected	7	1.4	ug/Kg	4/21/05	4/21/05
EPA 8260B	Carbon tetrachloride	Not detected	7	1.1	ug/Kg	4/21/05	4/21/05
EPA 8260B	Chlorobenzene	Not detected	7	0.65	ug/Kg	4/21/05	4/21/05
EPA 8260B	Chloroethane	Not detected	7	2.0	ug/Kg	4/21/05	4/21/05
EPA 8260B	Chloroform	Not detected	7	1.9	ug/Kg	4/21/05	4/21/05
EPA 8260B	Chloromethane	Not detected	7	2.4	ug/Kg	4/21/05	4/21/05
EPA 8260B	cis-1,2-Dichloroethene	57	7	1.4	ug/Kg	4/21/05	4/21/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	7	0.62	ug/Kg	4/21/05	4/21/05
EPA 8260B	Dibromochloromethane	Not detected	7	1.1	ug/Kg	4/21/05	4/21/05
EPA 8260B	Ethylbenzene	Not detected	7	0.85	ug/Kg	4/21/05	4/21/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	7	1.2	ug/Kg	4/21/05	4/21/05
EPA 8260B	Methylene chloride	Not detected	66	6.1	ug/Kg	4/21/05	4/21/05
EPA 8260B	Styrene	Not detected	7	0.91	ug/Kg	4/21/05	4/21/05
EPA 8260B	Tetrachloroethene	1.4 J	7	0.71	ug/Kg	4/21/05	4/21/05
EPA 8260B	Toluene	Not detected	7	0.86	ug/Kg	4/21/05	4/21/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	7	1.8	ug/Kg	4/21/05	4/21/05

J = Estimated value, below quantitation limit.

Run #: 0421C07  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed: 5/5/05 9:48:56 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-598

Sample Collection Date: 4/21/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47219

APPL ID: AX18379

QCG: \$86TTS-050421AC-86005

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	7	0.57	ug/Kg	4/21/05	4/21/05
EPA 8260B	Trichloroethene	160	7	0.94	ug/Kg	4/21/05	4/21/05
EPA 8260B	Vinyl Acetate	Not detected	66	1.3	ug/Kg	4/21/05	4/21/05
EPA 8260B	Vinyl chloride	Not detected	7	2.2	ug/Kg	4/21/05	4/21/05
EPA 8260B	Xylenes	Not detected	20	0.90	ug/Kg	4/21/05	4/21/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	102	52-149		%	4/21/05	4/21/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	95.4	65-135		%	4/21/05	4/21/05
EPA 8260B	Surrogate recovery: Toluene-d8	89.3	65-135		%	4/21/05	4/21/05

J = Estimated value, below quantitation limit.

Run #: 0421C07  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed: 5/20/05 1:52:08 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47219

Sample ID: 86-WOPT-599

APPL ID: AX18380

Sample Collection Date: 4/21/05

CCG: \$86TTS-050421AC-86005

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 18.4 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	0.99	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.5	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.59	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,1-Dichloroethane	Not detected	6	1.4	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,1-Dichloroethene	1.9 J	6	0.97	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.88	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.76	ug/Kg	4/21/05	4/21/05
EPA 8260B	2-Butanone	Not detected	61	0.87	ug/Kg	4/21/05	4/21/05
EPA 8260B	2-Hexanone	Not detected	61	0.20	ug/Kg	4/21/05	4/21/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	61	1.1	ug/Kg	4/21/05	4/21/05
EPA 8260B	Acetone	Not detected	120	3.4	ug/Kg	4/21/05	4/21/05
EPA 8260B	Benzene	Not detected	6	0.77	ug/Kg	4/21/05	4/21/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.85	ug/Kg	4/21/05	4/21/05
EPA 8260B	Bromoform	Not detected	6	0.98	ug/Kg	4/21/05	4/21/05
EPA 8260B	Bromomethane	Not detected	12	2.0	ug/Kg	4/21/05	4/21/05
EPA 8260B	Carbon disulfide	Not detected	6	1.3	ug/Kg	4/21/05	4/21/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.98	ug/Kg	4/21/05	4/21/05
EPA 8260B	Chlorobenzene	Not detected	6	0.60	ug/Kg	4/21/05	4/21/05
EPA 8260B	Chloroethane	Not detected	6	1.9	ug/Kg	4/21/05	4/21/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	4/21/05	4/21/05
EPA 8260B	Chloromethane	Not detected	6	2.2	ug/Kg	4/21/05	4/21/05
EPA 8260B	cis-1,2-Dichloroethene	24	6	1.3	ug/Kg	4/21/05	4/21/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.58	ug/Kg	4/21/05	4/21/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.0	ug/Kg	4/21/05	4/21/05
EPA 8260B	Ethylbenzene	Not detected	6	0.78	ug/Kg	4/21/05	4/21/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/21/05	4/21/05
EPA 8260B	Methylene chloride	Not detected	61	5.6	ug/Kg	4/21/05	4/21/05
EPA 8260B	Styrene	Not detected	6	0.85	ug/Kg	4/21/05	4/21/05
EPA 8260B	Tetrachloroethene	0.87 J	6	0.66	ug/Kg	4/21/05	4/21/05
EPA 8260B	Toluene	Not detected	6	0.80	ug/Kg	4/21/05	4/21/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.6	ug/Kg	4/21/05	4/21/05

J = Estimated value, below quantitation limit.

Run #: 0421C08  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed: 5/5/05 9:48:57 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Blenkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47219

Sample ID: 86-WOPT-599

APPL ID: AX18380

Sample Collection Date: 4/21/05

QCG: \$86TTS-050421AC-86005

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.53	ug/Kg	4/21/05	4/21/05
EPA 8260B	Trichloroethene	130	6	0.87	ug/Kg	4/21/05	4/21/05
EPA 8260B	Vinyl Acetate	Not detected	61	1.2	ug/Kg	4/21/05	4/21/05
EPA 8260B	Vinyl chloride	Not detected	6	2.1	ug/Kg	4/21/05	4/21/05
EPA 8260B	Xylenes	Not detected	18	0.83	ug/Kg	4/21/05	4/21/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	104	52-149		%	4/21/05	4/21/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	98.6	65-135		%	4/21/05	4/21/05
EPA 8260B	Surrogate recovery: Toluene-d8	93.6	65-135		%	4/21/05	4/21/05

J = Estimated value, below quantitation limit.

Run #: 0421C08  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed: 5/5/05 9:48:57 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47219

Sample ID: 86-WOPT-600

APPL ID: AX18381

Sample Collection Date: 4/21/05

CCG: \$86TTS-050421AC-86005

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 14.0 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	0.94	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.4	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.56	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,1-Dichloroethane	1.4 J	6	1.3	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,1-Dichloroethene	2.8 J	6	0.92	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.84	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.72	ug/Kg	4/21/05	4/21/05
EPA 8260B	2-Butanone	Not detected	58	0.83	ug/Kg	4/21/05	4/21/05
EPA 8260B	2-Hexanone	Not detected	58	0.19	ug/Kg	4/21/05	4/21/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	58	1.1	ug/Kg	4/21/05	4/21/05
EPA 8260B	Acetone	Not detected	120	3.3	ug/Kg	4/21/05	4/21/05
EPA 8260B	Benzene	Not detected	6	0.73	ug/Kg	4/21/05	4/21/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.80	ug/Kg	4/21/05	4/21/05
EPA 8260B	Bromoform	Not detected	6	0.93	ug/Kg	4/21/05	4/21/05
EPA 8260B	Bromomethane	Not detected	12	1.9	ug/Kg	4/21/05	4/21/05
EPA 8260B	Carbon disulfide	Not detected	6	1.3	ug/Kg	4/21/05	4/21/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.93	ug/Kg	4/21/05	4/21/05
EPA 8260B	Chlorobenzene	Not detected	6	0.57	ug/Kg	4/21/05	4/21/05
EPA 8260B	Chloroethane	Not detected	6	1.8	ug/Kg	4/21/05	4/21/05
EPA 8260B	Chloroform	Not detected	6	1.7	ug/Kg	4/21/05	4/21/05
EPA 8260B	Chloromethane	Not detected	6	2.1	ug/Kg	4/21/05	4/21/05
EPA 8260B	cis-1,2-Dichloroethene	33	6	1.2	ug/Kg	4/21/05	4/21/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.55	ug/Kg	4/21/05	4/21/05
EPA 8260B	Dibromochloromethane	Not detected	6	0.99	ug/Kg	4/21/05	4/21/05
EPA 8260B	Ethylbenzene	Not detected	6	0.74	ug/Kg	4/21/05	4/21/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.0	ug/Kg	4/21/05	4/21/05
EPA 8260B	Methylene chloride	Not detected	58	5.3	ug/Kg	4/21/05	4/21/05
EPA 8260B	Styrene	Not detected	6	0.80	ug/Kg	4/21/05	4/21/05
EPA 8260B	Tetrachloroethene	Not detected	6	0.63	ug/Kg	4/21/05	4/21/05
EPA 8260B	Toluene	Not detected	6	0.76	ug/Kg	4/21/05	4/21/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.6	ug/Kg	4/21/05	4/21/05

J = Estimated value, below quantitation limit.

Run #: 0421C09  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed 5/5/05 9:48:57 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-600

Sample Collection Date: 4/21/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47219

APPL ID: AX18381

QCG: S86TTS-050421AC-86005

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.50	ug/Kg	4/21/05	4/21/05
EPA 8260B	Trichloroethene	250	6	0.83	ug/Kg	4/21/05	4/21/05
EPA 8260B	Vinyl Acetate	Not detected	58	1.2	ug/Kg	4/21/05	4/21/05
EPA 8260B	Vinyl chloride	Not detected	6	2.0	ug/Kg	4/21/05	4/21/05
EPA 8260B	Xylenes	Not detected	17	0.79	ug/Kg	4/21/05	4/21/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	111	52-149		%	4/21/05	4/21/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	102	65-135		%	4/21/05	4/21/05
EPA 8260B	Surrogate recovery: Toluene-d8	94.2	65-135		%	4/21/05	4/21/05

J = Estimated value, below quantitation limit.

Run #: 0421C09  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed: 5/5/05 9:48:57 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-601

Sample Collection Date: 4/21/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47219

APPL ID: AX18382

QCG: \$86TTW-050422AS-86045

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/22/05	4/22/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/22/05	4/22/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/22/05	4/22/05
EPA 8260B	1,1-Dichloroethane	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
EPA 8260B	1,1-Dichloroethene	Not detected	0.5	0.30	ug/L	4/22/05	4/22/05
EPA 8260B	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/22/05	4/22/05
EPA 8260B	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/22/05	4/22/05
EPA 8260B	2-Butanone	Not detected	5	0.6	ug/L	4/22/05	4/22/05
EPA 8260B	2-Hexanone	Not detected	5	0.92	ug/L	4/22/05	4/22/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/22/05	4/22/05
EPA 8260B	Acetone	Not detected	5	0.95	ug/L	4/22/05	4/22/05
EPA 8260B	Benzene	Not detected	0.5	0.16	ug/L	4/22/05	4/22/05
EPA 8260B	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/22/05	4/22/05
EPA 8260B	Bromoform	Not detected	0.5	0.14	ug/L	4/22/05	4/22/05
EPA 8260B	Bromomethane	Not detected	1	0.24	ug/L	4/22/05	4/22/05
EPA 8260B	Carbon disulfide	Not detected	0.5	0.2	ug/L	4/22/05	4/22/05
EPA 8260B	Carbon tetrachloride	Not detected	0.5	0.10	ug/L	4/22/05	4/22/05
EPA 8260B	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/22/05	4/22/05
EPA 8260B	Chloroethane	Not detected	0.5	0.21	ug/L	4/22/05	4/22/05
EPA 8260B	Chloroform	Not detected	0.5	0.16	ug/L	4/22/05	4/22/05
EPA 8260B	Chloromethane	Not detected	0.5	0.31	ug/L	4/22/05	4/22/05
EPA 8260B	cis-1,2-Dichloroethene	Not detected	0.5	0.16	ug/L	4/22/05	4/22/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/22/05	4/22/05
EPA 8260B	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
EPA 8260B	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/22/05	4/22/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
EPA 8260B	Methylene chloride	Not detected	5	0.35	ug/L	4/22/05	4/22/05
EPA 8260B	Styrene	Not detected	0.5	0.25	ug/L	4/22/05	4/22/05
EPA 8260B	Tetrachloroethene	Not detected	0.5	0.15	ug/L	4/22/05	4/22/05
EPA 8260B	Toluene	Not detected	0.5	0.17	ug/L	4/22/05	4/22/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05

Run #: 0422S07  
Instrument: Sweetpea  
Sequence: S050420  
Dilution Factor: 1  
Initials: LF

Printed: 5/5/05 9:48 57 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-601

Sample Collection Date: 4/21/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47219

APPL ID: AX18382

QCG: \$86TTW-050422AS-86045

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/22/05	4/22/05
EPA 8260B	Trichloroethene	Not detected	0.5	0.16	ug/L	4/22/05	4/22/05
EPA 8260B	Vinyl Acetate	Not detected	5	0.31	ug/L	4/22/05	4/22/05
EPA 8260B	Vinyl chloride	Not detected	0.5	0.23	ug/L	4/22/05	4/22/05
EPA 8260B	Xylenes	Not detected	1.5	0.19	ug/L	4/22/05	4/22/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	110	62-139		%	4/22/05	4/22/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	106	75-125		%	4/22/05	4/22/05
EPA 8260B	Surrogate recovery: Toluene-d8	101	75-125		%	4/22/05	4/22/05

Run #: 0422S07  
Instrument: Sweetpea  
Sequence: S050420  
Dilution Factor: 1  
Initials: LF

Printed: 5/5/05 9:48:57 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47219

Sample ID: 86-WOPT-1106

APPL ID: AX18383

Sample Collection Date: 4/21/05

OCG: SC42VT-050421AN-86001

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/22/05	4/22/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/22/05	4/22/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	0.5	0.21	ug/L	4/22/05	4/22/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/22/05	4/22/05
CLP VOL	1,1-Dichloroethane	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	1,1-Dichloroethene	Not detected	0.5	0.30	ug/L	4/22/05	4/22/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/22/05	4/22/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/22/05	4/22/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/22/05	4/22/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/22/05	4/22/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/22/05	4/22/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/22/05	4/22/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/22/05	4/22/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/22/05	4/22/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/22/05	4/22/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/22/05	4/22/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/22/05	4/22/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/22/05	4/22/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/22/05	4/22/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/22/05	4/22/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	4/22/05	4/22/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/22/05	4/22/05
CLP VOL	cis-1,2-Dichloroethene	Not detected	0.5	0.16	ug/L	4/22/05	4/22/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/22/05	4/22/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/22/05	4/22/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/22/05	4/22/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/22/05	4/22/05

# = Recovery (or RPD) is outside QC limits.

Run #: 0421N14  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 1  
Initials: LF

Printed 5/5/05 9:48:57 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1106

Sample Collection Date: 4/21/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47219

APPL ID: AX18383

QCG: SC42VT-050421AN-86001

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	Not detected	0.5	0.15	ug/L	4/22/05	4/22/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/22/05	4/22/05
CLP VOL	trans-1,2-Dichloroethene	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/22/05	4/22/05
CLP VOL	Trichloroethene	Not detected	0.5	0.16	ug/L	4/22/05	4/22/05
CLP VOL	Vinyl Chloride	Not detected	0.5	0.23	ug/L	4/22/05	4/22/05
CLP VOL	Surrogate Recovery (BFB)	115	75-125		%	4/22/05	4/22/05
CLP VOL	Surrogate Recovery (DCA)	126	62-139		%	4/22/05	4/22/05
CLP VOL	Surrogate Recovery (TOL)	130 #	75-125		%	4/22/05	4/22/05

# = Recovery (or RPD) is outside QC limits.

Run #: 0421N14  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 1  
Initials: LF

Printed: 5/5/05 9:48:57 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.036D WATS Bldg 88 Moffett Airfield

ARF: 47219

Sample ID: 86-WOPT-1107

APPL ID: AX18384

Sample Collection Date: 4/21/05

CCG: SC42VT-050421BN-86003

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/22/05	4/22/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/22/05	4/22/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	0.5	0.21	ug/L	4/22/05	4/22/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/22/05	4/22/05
CLP VOL	1,1-Dichloroethane	17	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	1,1-Dichloroethene	29	0.5	0.30	ug/L	4/22/05	4/22/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/22/05	4/22/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/22/05	4/22/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/22/05	4/22/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/22/05	4/22/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/22/05	4/22/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/22/05	4/22/05
CLP VOL	Benzene	0.46 J	0.5	0.16	ug/L	4/22/05	4/22/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/22/05	4/22/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/22/05	4/22/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/22/05	4/22/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/22/05	4/22/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/22/05	4/22/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/22/05	4/22/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/22/05	4/22/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	4/22/05	4/22/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/22/05	4/22/05
CLP VOL	cis-1,2-Dichloroethene	1000 E	0.5	0.16	ug/L	4/22/05	4/22/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/22/05	4/22/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	Ethylbenzene	0.33 J	0.5	0.23	ug/L	4/22/05	4/22/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/22/05	4/22/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/22/05	4/22/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0421N27  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 1  
Initials: LF

Printed: 5/5/05 9:48:57 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47219

Sample ID: 86-WOPT-1107

APPL ID: AX18384

Sample Collection Date: 4/21/05

QCG: \$C42VT-050421BN-86003

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	Not detected	0.5	0.15	ug/L	4/22/05	4/22/05
CLP VOL	Toluene	0.17 J	0.5	0.17	ug/L	4/22/05	4/22/05
CLP VOL	trans-1,2-Dichloroethene	4.8	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/22/05	4/22/05
CLP VOL	Trichloroethene	9.8	0.5	0.16	ug/L	4/22/05	4/22/05
CLP VOL	Vinyl Chloride	1.2	0.5	0.23	ug/L	4/22/05	4/22/05
CLP VOL	Surrogate Recovery (BFB)	97.9	75-125		%	4/22/05	4/22/05
CLP VOL	Surrogate Recovery (DCA)	100	62-139		%	4/22/05	4/22/05
CLP VOL	Surrogate Recovery (TOL)	102	75-125		%	4/22/05	4/22/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0421N27  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 1  
Initials: LF

Printed: 5/5/05 9:48:57 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bierkowski

Project: 1930.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1107

Sample Collection Date: 4/21/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47219

APPL ID: AX18384

QCG: \$C42VD-050424AN-86963

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	750	40	12.80	ug/L	4/25/05	4/25/05
CLP VOL	Surrogate Recovery (BFB)	110	75-125		%	4/25/05	4/25/05
CLP VOL	Surrogate Recovery (DCA)	106	62-139		%	4/25/05	4/25/05
CLP VOL	Surrogate Recovery (TOL)	99.4	75-125		%	4/25/05	4/25/05

Run #: 0424N17  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 80  
Initials: LF

Printed: 5/18/05 8:59:03 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47219

Sample ID: 86-WOPT-1108

APPL ID: AX18385

Sample Collection Date: 4/21/05

QCG: \$C42VT-050421BN-86003

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/22/05	4/22/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/22/05	4/22/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	0.82	0.5	0.21	ug/L	4/22/05	4/22/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/22/05	4/22/05
CLP VOL	1,1-Dichloroethane	8.8	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	1,1-Dichloroethene	18	0.5	0.30	ug/L	4/22/05	4/22/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/22/05	4/22/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/22/05	4/22/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/22/05	4/22/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/22/05	4/22/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/22/05	4/22/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/22/05	4/22/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/22/05	4/22/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/22/05	4/22/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/22/05	4/22/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/22/05	4/22/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/22/05	4/22/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/22/05	4/22/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/22/05	4/22/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/22/05	4/22/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	4/22/05	4/22/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/22/05	4/22/05
CLP VOL	cis-1,2-Dichloroethene	920 E	0.5	0.16	ug/L	4/22/05	4/22/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/22/05	4/22/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/22/05	4/22/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/22/05	4/22/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/22/05	4/22/05

E = The reported value exceeds linear range.

Run #: 0421N28  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 1  
Initials: LF

Printed: 5/5/05 9:48:57 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1108

Sample Collection Date: 4/21/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47219

APPL ID: AX18385

QCG: SC42VT-050421BN-86003

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	Not detected	0.5	0.15	ug/L	4/22/05	4/22/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/22/05	4/22/05
CLP VOL	trans-1,2-Dichloroethene	6.8	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/22/05	4/22/05
CLP VOL	Trichloroethene	160 E	0.5	0.16	ug/L	4/22/05	4/22/05
CLP VOL	Vinyl Chloride	1.2	0.5	0.23	ug/L	4/22/05	4/22/05
CLP VOL	Surrogate Recovery (BFB)	103	75-125		%	4/22/05	4/22/05
CLP VOL	Surrogate Recovery (DCA)	89.7	62-139		%	4/22/05	4/22/05
CLP VOL	Surrogate Recovery (TOL)	105	75-125		%	4/22/05	4/22/05

E = The reported value exceeds linear range.

Run #: 0421N28  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 1  
Initials: LF

Printed: 5/5/05 9:48:57 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-1108**

Sample Collection Date: 4/21/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47219

**APPL ID: AX18385**

QCG: SC42VD-050424AN-86963

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	730	20	6.40	ug/L	4/25/05	4/25/05
CLP VOL	Trichloroethene	85	20	6.40	ug/L	4/25/05	4/25/05
CLP VOL	Surrogate Recovery (BFB)	110	75-125		%	4/25/05	4/25/05
CLP VOL	Surrogate Recovery (DCA)	101	62-139		%	4/25/05	4/25/05
CLP VOL	Surrogate Recovery (TOL)	103	75-125		%	4/25/05	4/25/05

Run #: 0424N18  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 40  
Initials: LF

Printed 5/18/05 8:59 03 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1109

Sample Collection Date: 4/21/05

ARF: 47219

APPL ID: AX18386

QCG: \$C42VT-050421BN-96003

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	1.1	0.5	0.14	ug/L	4/22/05	4/22/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/22/05	4/22/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	4.2	0.5	0.21	ug/L	4/22/05	4/22/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/22/05	4/22/05
CLP VOL	1,1-Dichloroethane	8.9	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	1,1-Dichloroethene	14	0.5	0.30	ug/L	4/22/05	4/22/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/22/05	4/22/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/22/05	4/22/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/22/05	4/22/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/22/05	4/22/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/22/05	4/22/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/22/05	4/22/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/22/05	4/22/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/22/05	4/22/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/22/05	4/22/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/22/05	4/22/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/22/05	4/22/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/22/05	4/22/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/22/05	4/22/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/22/05	4/22/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	4/22/05	4/22/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/22/05	4/22/05
CLP VOL	cis-1,2-Dichloroethene	160 E	0.5	0.16	ug/L	4/22/05	4/22/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/22/05	4/22/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/22/05	4/22/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/22/05	4/22/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/22/05	4/22/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0421N31  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 1  
Initials: LF

Printed: 5/5/05 9:48:57 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1109

Sample Collection Date: 4/21/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47219

APPL ID: AX18386

QCG: SC42VT-050421BN-86003

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	Not detected	0.5	0.15	ug/L	4/22/05	4/22/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/22/05	4/22/05
CLP VOL	trans-1,2-Dichloroethene	0.85	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/22/05	4/22/05
CLP VOL	Trichloroethene	190 E	0.5	0.16	ug/L	4/22/05	4/22/05
CLP VOL	Vinyl Chloride	0.47 J	0.5	0.23	ug/L	4/22/05	4/22/05
CLP VOL	Surrogate Recovery (BFB)	102	75-125		%	4/22/05	4/22/05
CLP VOL	Surrogate Recovery (DCA)	101	62-139		%	4/22/05	4/22/05
CLP VOL	Surrogate Recovery (TOL)	106	75-125		%	4/22/05	4/22/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0421N31  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 1  
Initials: LF

Printed: 5/5/05 9:48:57 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-1109**

Sample Collection Date: 4/21/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47219

**APPL ID: AX18386**

QCQ: \$C42VD-050424AN-86963

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	250	10	3.20	ug/L	4/25/05	4/25/05
CLP VOL	Trichloroethene	250	10	3.20	ug/L	4/25/05	4/25/05
CLP VOL	Surrogate Recovery (BFB)	115	75-125		%	4/25/05	4/25/05
CLP VOL	Surrogate Recovery (DCA)	103	62-139		%	4/25/05	4/25/05
CLP VOL	Surrogate Recovery (TOL)	101	75-125		%	4/25/05	4/25/05

Run #: 0424N19  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 20  
Initials: LF

Printed: 5/18/05 8:59:03 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1110

Sample Collection Date: 4/21/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47219

APPL ID: AX18387

QCG: SC42VT-050421BN-86003

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/22/05	4/22/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/22/05	4/22/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	0.5	0.21	ug/L	4/22/05	4/22/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/22/05	4/22/05
CLP VOL	1,1-Dichloroethane	0.33 J	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	1,1-Dichloroethene	0.33 J	0.5	0.30	ug/L	4/22/05	4/22/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/22/05	4/22/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/22/05	4/22/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/22/05	4/22/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/22/05	4/22/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/22/05	4/22/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/22/05	4/22/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/22/05	4/22/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/22/05	4/22/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/22/05	4/22/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/22/05	4/22/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/22/05	4/22/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/22/05	4/22/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/22/05	4/22/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/22/05	4/22/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	4/22/05	4/22/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/22/05	4/22/05
CLP VOL	cis-1,2-Dichloroethene	7.5	0.5	0.16	ug/L	4/22/05	4/22/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/22/05	4/22/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/22/05	4/22/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/22/05	4/22/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/22/05	4/22/05

J = Estimated value, below quantitation limit.

Run #: 0421N29  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 1  
Initials: LF

Printed 5/5/05 9:48:57 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1110

Sample Collection Date: 4/21/05

ARF: 47219

APPL ID: AX18387

QCG: SC42VT-050421BN-86003

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	Not detected	0.5	0.15	ug/L	4/22/05	4/22/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/22/05	4/22/05
CLP VOL	trans-1,2-Dichloroethene	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/22/05	4/22/05
CLP VOL	Trichloroethene	6.9	0.5	0.16	ug/L	4/22/05	4/22/05
CLP VOL	Vinyl Chloride	Not detected	0.5	0.23	ug/L	4/22/05	4/22/05
CLP VOL	Surrogate Recovery (BFB)	105	75-125		%	4/22/05	4/22/05
CLP VOL	Surrogate Recovery (DCA)	96.9	62-139		%	4/22/05	4/22/05
CLP VOL	Surrogate Recovery (TOL)	104	75-125		%	4/22/05	4/22/05

J = Estimated value, below quantitation limit.

Run #: 0421N29  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 1  
Initials: LF

Printed: 5/5/05 9:48:57 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 83 Mofett Airfield

ARF: 47219

Sample ID: 86-WOPT-1111

APPL ID: AX18388

Sample Collection Date: 4/21/05

OCG: SC42VT-050421BN-86003

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/22/05	4/22/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/22/05	4/22/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	0.5	0.21	ug/L	4/22/05	4/22/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/22/05	4/22/05
CLP VOL	1,1-Dichloroethane	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	1,1-Dichloroethene	Not detected	0.5	0.30	ug/L	4/22/05	4/22/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/22/05	4/22/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/22/05	4/22/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/22/05	4/22/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/22/05	4/22/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/22/05	4/22/05
CLP VOL	Acetone	5.1	5	0.95	ug/L	4/22/05	4/22/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/22/05	4/22/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/22/05	4/22/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/22/05	4/22/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/22/05	4/22/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/22/05	4/22/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/22/05	4/22/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/22/05	4/22/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/22/05	4/22/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	4/22/05	4/22/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/22/05	4/22/05
CLP VOL	cis-1,2-Dichloroethene	1.8	0.5	0.16	ug/L	4/22/05	4/22/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/22/05	4/22/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/22/05	4/22/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/22/05	4/22/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/22/05	4/22/05

J = Estimated value, below quantitation limit.

Run #: 0421N30  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 1  
Initials: LF

Printed: 5/5/05 9:48:57 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: **86-WOPT-1111**

Sample Collection Date: 4/21/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47219

APPL ID: **AX18388**

QCG: \$C42VT-050421BN-86003

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	Not detected	0.5	0.15	ug/L	4/22/05	4/22/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/22/05	4/22/05
CLP VOL	trans-1,2-Dichloroethene	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/22/05	4/22/05
CLP VOL	Trichloroethene	0.45 J	0.5	0.16	ug/L	4/22/05	4/22/05
CLP VOL	Vinyl Chloride	Not detected	0.5	0.23	ug/L	4/22/05	4/22/05
CLP VOL	Surrogate Recovery (BFB)	102	75-125		%	4/22/05	4/22/05
CLP VOL	Surrogate Recovery (DCA)	121	62-139		%	4/22/05	4/22/05
CLP VOL	Surrogate Recovery (TOL)	94.5	75-125		%	4/22/05	4/22/05

J = Estimated value, below quantitation limit.

Run #: 0421N30  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 1  
Initials: LF

Printed: 5/5/05 9:48:57 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47219

Sample ID: 86-WOPT-1112

APPL ID: AX18389

Sample Collection Date: 4/21/05

QCG: \$86TTS-050421AC-86005

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 20.8 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	1.0	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.6	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.61	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,1-Dichloroethane	7.0	6	1.4	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,1-Dichloroethene	6.0	6	1.0	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.91	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.78	ug/Kg	4/21/05	4/21/05
EPA 8260B	2-Butanone	Not detected	63	0.90	ug/Kg	4/21/05	4/21/05
EPA 8260B	2-Hexanone	Not detected	63	0.20	ug/Kg	4/21/05	4/21/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	63	1.2	ug/Kg	4/21/05	4/21/05
EPA 8260B	Acetone	Not detected	130	3.5	ug/Kg	4/21/05	4/21/05
EPA 8260B	Benzene	Not detected	6	0.80	ug/Kg	4/21/05	4/21/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.87	ug/Kg	4/21/05	4/21/05
EPA 8260B	Bromoform	Not detected	6	1.0	ug/Kg	4/21/05	4/21/05
EPA 8260B	Bromomethane	Not detected	13	2.0	ug/Kg	4/21/05	4/21/05
EPA 8260B	Carbon disulfide	Not detected	6	1.4	ug/Kg	4/21/05	4/21/05
EPA 8260B	Carbon tetrachloride	Not detected	6	1.0	ug/Kg	4/21/05	4/21/05
EPA 8260B	Chlorobenzene	Not detected	6	0.62	ug/Kg	4/21/05	4/21/05
EPA 8260B	Chloroethane	Not detected	6	2.0	ug/Kg	4/21/05	4/21/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	4/21/05	4/21/05
EPA 8260B	Chloromethane	Not detected	6	2.3	ug/Kg	4/21/05	4/21/05
EPA 8260B	cis-1,2-Dichloroethene	240	6	1.4	ug/Kg	4/21/05	4/21/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.59	ug/Kg	4/21/05	4/21/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.1	ug/Kg	4/21/05	4/21/05
EPA 8260B	Ethylbenzene	Not detected	6	0.81	ug/Kg	4/21/05	4/21/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/21/05	4/21/05
EPA 8260B	Methylene chloride	Not detected	63	5.8	ug/Kg	4/21/05	4/21/05
EPA 8260B	Styrene	Not detected	6	0.87	ug/Kg	4/21/05	4/21/05
EPA 8260B	Tetrachloroethene	Not detected	6	0.68	ug/Kg	4/21/05	4/21/05
EPA 8260B	Toluene	Not detected	6	0.82	ug/Kg	4/21/05	4/21/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.7	ug/Kg	4/21/05	4/21/05

J = Estimated value, below quantitation limit.

Run #: 0421C10  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed: 5/5/05 9:48:57 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deers Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1112

Sample Collection Date: 4/21/05

ARF: 47219

APPL ID: AX18389

QCG: \$86TTS-050421AC-86005

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.54	ug/Kg	4/21/05	4/21/05
EPA 8260B	Trichloroethene	1.3 J	6	0.90	ug/Kg	4/21/05	4/21/05
EPA 8260B	Vinyl Acetate	Not detected	63	1.3	ug/Kg	4/21/05	4/21/05
EPA 8260B	Vinyl chloride	Not detected	6	2.1	ug/Kg	4/21/05	4/21/05
EPA 8260B	Xylenes	Not detected	19	0.86	ug/Kg	4/21/05	4/21/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	115	52-149		%	4/21/05	4/21/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	102	65-135		%	4/21/05	4/21/05
EPA 8260B	Surrogate recovery: Toluene-d8	91.0	65-135		%	4/21/05	4/21/05

J = Estimated value, below quantitation limit.

Run #: 0421C10  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed: 5/5/05 9:48:57 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47219

Sample ID: 86-WOPT-1113

APPL ID: AX18390

Sample Collection Date: 4/21/05

QCG: \$86TTS-050421AC-86005

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 19.0 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	1.0	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.5	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.59	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,1-Dichloroethane	Not detected	6	1.4	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,1-Dichloroethene	4.2 J	6	0.98	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.89	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.77	ug/Kg	4/21/05	4/21/05
EPA 8260B	2-Butanone	Not detected	62	0.88	ug/Kg	4/21/05	4/21/05
EPA 8260B	2-Hexanone	Not detected	62	0.20	ug/Kg	4/21/05	4/21/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	62	1.1	ug/Kg	4/21/05	4/21/05
EPA 8260B	Acetone	Not detected	120	3.5	ug/Kg	4/21/05	4/21/05
EPA 8260B	Benzene	Not detected	6	0.78	ug/Kg	4/21/05	4/21/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.85	ug/Kg	4/21/05	4/21/05
EPA 8260B	Bromoform	Not detected	6	0.99	ug/Kg	4/21/05	4/21/05
EPA 8260B	Bromomethane	Not detected	12	2.0	ug/Kg	4/21/05	4/21/05
EPA 8260B	Carbon disulfide	Not detected	6	1.3	ug/Kg	4/21/05	4/21/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.99	ug/Kg	4/21/05	4/21/05
EPA 8260B	Chlorobenzene	Not detected	6	0.60	ug/Kg	4/21/05	4/21/05
EPA 8260B	Chloroethane	Not detected	6	1.9	ug/Kg	4/21/05	4/21/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	4/21/05	4/21/05
EPA 8260B	Chloromethane	Not detected	6	2.2	ug/Kg	4/21/05	4/21/05
EPA 8260B	cis-1,2-Dichloroethene	290	6	1.3	ug/Kg	4/21/05	4/21/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.58	ug/Kg	4/21/05	4/21/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.0	ug/Kg	4/21/05	4/21/05
EPA 8260B	Ethylbenzene	Not detected	6	0.79	ug/Kg	4/21/05	4/21/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/21/05	4/21/05
EPA 8260B	Methylene chloride	Not detected	62	5.6	ug/Kg	4/21/05	4/21/05
EPA 8260B	Styrene	Not detected	6	0.85	ug/Kg	4/21/05	4/21/05
EPA 8260B	Tetrachloroethene	Not detected	6	0.67	ug/Kg	4/21/05	4/21/05
EPA 8260B	Toluene	Not detected	6	0.80	ug/Kg	4/21/05	4/21/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.7	ug/Kg	4/21/05	4/21/05

J = Estimated value, below quantitation limit.

Run #: 0421C11  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed: 5/5/05 9:48:57 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47219

Sample ID: **86-WCPT-1113**

APPL ID: **AX18390**

Sample Collection Date: 4/21/05

QCG: \$86TTS-050421AC-86005

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.53	ug/Kg	4/21/05	4/21/05
EPA 8260B	Trichloroethene	2.6 J	6	0.88	ug/Kg	4/21/05	4/21/05
EPA 8260B	Vinyl Acetate	Not detected	62	1.2	ug/Kg	4/21/05	4/21/05
EPA 8260B	Vinyl chloride	Not detected	6	2.1	ug/Kg	4/21/05	4/21/05
EPA 8260B	Xylenes	Not detected	19	0.84	ug/Kg	4/21/05	4/21/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	118	52-149		%	4/21/05	4/21/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	101	65-135		%	4/21/05	4/21/05
EPA 8260B	Surrogate recovery: Toluene-d8	86.9	65-135		%	4/21/05	4/21/05

J = Estimated value, below quantitation limit.

Run #: 0421C11  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed: 5/5/05 9:48:57 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47219

Sample ID: 86-WOPT-1114

APPL ID: AX18391

Sample Collection Date: 4/21/05

QCG: S86TTS-050421AC-86005

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 18.2 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	0.99	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.5	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.59	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,1-Dichloroethane	1.5 J	6	1.4	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,1-Dichloroethene	2.5 J	6	0.97	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.88	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.76	ug/Kg	4/21/05	4/21/05
EPA 8260B	2-Butanone	Not detected	61	0.87	ug/Kg	4/21/05	4/21/05
EPA 8260B	2-Hexanone	Not detected	61	0.20	ug/Kg	4/21/05	4/21/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	61	1.1	ug/Kg	4/21/05	4/21/05
EPA 8260B	Acetone	Not detected	120	3.4	ug/Kg	4/21/05	4/21/05
EPA 8260B	Benzene	Not detected	6	0.77	ug/Kg	4/21/05	4/21/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.84	ug/Kg	4/21/05	4/21/05
EPA 8260B	Bromoform	Not detected	6	0.98	ug/Kg	4/21/05	4/21/05
EPA 8260B	Bromomethane	Not detected	12	2.0	ug/Kg	4/21/05	4/21/05
EPA 8260B	Carbon disulfide	Not detected	6	1.3	ug/Kg	4/21/05	4/21/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.98	ug/Kg	4/21/05	4/21/05
EPA 8260B	Chlorobenzene	Not detected	6	0.60	ug/Kg	4/21/05	4/21/05
EPA 8260B	Chloroethane	Not detected	6	1.9	ug/Kg	4/21/05	4/21/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	4/21/05	4/21/05
EPA 8260B	Chloromethane	Not detected	6	2.2	ug/Kg	4/21/05	4/21/05
EPA 8260B	cis-1,2-Dichloroethene	250	6	1.3	ug/Kg	4/21/05	4/21/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.57	ug/Kg	4/21/05	4/21/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.0	ug/Kg	4/21/05	4/21/05
EPA 8260B	Ethylbenzene	Not detected	6	0.78	ug/Kg	4/21/05	4/21/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/21/05	4/21/05
EPA 8260B	Methylene chloride	Not detected	61	5.6	ug/Kg	4/21/05	4/21/05
EPA 8260B	Styrene	Not detected	6	0.84	ug/Kg	4/21/05	4/21/05
EPA 8260B	Tetrachloroethene	Not detected	6	0.66	ug/Kg	4/21/05	4/21/05
EPA 8260B	Toluene	Not detected	6	0.79	ug/Kg	4/21/05	4/21/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.6	ug/Kg	4/21/05	4/21/05

J = Estimated value, below quantitation limit.

Run #: 0421C12  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed: 5/5/05 9:48:57 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47219

**Sample ID: 86-WOPT-1114**

**APPL ID: AX18391**

Sample Collection Date: 4/21/05

QCG: \$86TTS-050421AC-86005

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.53	ug/Kg	4/21/05	4/21/05
EPA 8260B	Trichloroethene	4.5 J	6	0.87	ug/Kg	4/21/05	4/21/05
EPA 8260B	Vinyl Acetate	Not detected	61	1.2	ug/Kg	4/21/05	4/21/05
EPA 8260B	Vinyl chloride	Not detected	6	2.0	ug/Kg	4/21/05	4/21/05
EPA 8260B	Xylenes	Not detected	18	0.83	ug/Kg	4/21/05	4/21/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	112	52-149		%	4/21/05	4/21/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	104	65-135		%	4/21/05	4/21/05
EPA 8260B	Surrogate recovery: Toluene-d8	91.4	65-135		%	4/21/05	4/21/05

J = Estimated value, below quantitation limit.

Run #: 0421C12  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed: 5/5/05 9:48:57 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47219

Sample ID: 86-WOPT-1115

APPL ID: AX18392

Sample Collection Date: 4/21/05

QCG: \$86TTS-050421AC-86005

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 21.2 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	1.0	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.6	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.61	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,1-Dichloroethane	Not detected	6	1.4	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,1-Dichloroethene	1.3 J	6	1.0	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.91	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.79	ug/Kg	4/21/05	4/21/05
EPA 8260B	2-Butanone	Not detected	63	0.90	ug/Kg	4/21/05	4/21/05
EPA 8260B	2-Hexanone	Not detected	63	0.20	ug/Kg	4/21/05	4/21/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	63	1.2	ug/Kg	4/21/05	4/21/05
EPA 8260B	Acetone	Not detected	130	3.6	ug/Kg	4/21/05	4/21/05
EPA 8260B	Benzene	Not detected	6	0.80	ug/Kg	4/21/05	4/21/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.88	ug/Kg	4/21/05	4/21/05
EPA 8260B	Bromoform	Not detected	6	1.0	ug/Kg	4/21/05	4/21/05
EPA 8260B	Bromomethane	Not detected	13	2.0	ug/Kg	4/21/05	4/21/05
EPA 8260B	Carbon disulfide	Not detected	6	1.4	ug/Kg	4/21/05	4/21/05
EPA 8260B	Carbon tetrachloride	Not detected	6	1.0	ug/Kg	4/21/05	4/21/05
EPA 8260B	Chlorobenzene	Not detected	6	0.62	ug/Kg	4/21/05	4/21/05
EPA 8260B	Chloroethane	Not detected	6	2.0	ug/Kg	4/21/05	4/21/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	4/21/05	4/21/05
EPA 8260B	Chloromethane	Not detected	6	2.3	ug/Kg	4/21/05	4/21/05
EPA 8260B	cis-1,2-Dichloroethene	19	6	1.4	ug/Kg	4/21/05	4/21/05
EPA 8260B	cis-1,3-Dichloropropane	Not detected	6	0.60	ug/Kg	4/21/05	4/21/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.1	ug/Kg	4/21/05	4/21/05
EPA 8260B	Ethylbenzene	Not detected	6	0.81	ug/Kg	4/21/05	4/21/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/21/05	4/21/05
EPA 8260B	Methylene chloride	Not detected	63	5.8	ug/Kg	4/21/05	4/21/05
EPA 8260B	Styrene	Not detected	6	0.88	ug/Kg	4/21/05	4/21/05
EPA 8260B	Tetrachloroethene	Not detected	6	0.69	ug/Kg	4/21/05	4/21/05
EPA 8260B	Toluene	Not detected	6	0.82	ug/Kg	4/21/05	4/21/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.7	ug/Kg	4/21/05	4/21/05

J = Estimated value, below quantitation limit.

Run #: 0421C13  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed: 5/5/05 9:48:57 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-1115**

Sample Collection Date: 4/21/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47219

**APPL ID: AX18392**

QCG: S86TTS-050421AC-86005

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.55	ug/Kg	4/21/05	4/21/05
EPA 8260B	Trichloroethene	33	6	0.90	ug/Kg	4/21/05	4/21/05
EPA 8260B	Vinyl Acetate	Not detected	63	1.3	ug/Kg	4/21/05	4/21/05
EPA 8260B	Vinyl chloride	Not detected	6	2.1	ug/Kg	4/21/05	4/21/05
EPA 8260B	Xylenes	Not detected	19	0.86	ug/Kg	4/21/05	4/21/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	115	52-149		%	4/21/05	4/21/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	106	65-135		%	4/21/05	4/21/05
EPA 8260B	Surrogate recovery: Toluene-d8	95.3	65-135		%	4/21/05	4/21/05

J = Estimated value, below quantitation limit.

Run #: 0421C13  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed: 5/5/05 9:48:57 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1116

Sample Collection Date: 4/21/05

ARF: 47219

APPL ID: AX18393

QCG: S86TTS-050421AC-86005

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 15.5 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	0.96	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.5	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.57	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,1-Dichloroethane	Not detected	6	1.3	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,1-Dichloroethene	Not detected	6	0.93	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.85	ug/Kg	4/21/05	4/21/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.73	ug/Kg	4/21/05	4/21/05
EPA 8260B	2-Butanone	Not detected	59	0.84	ug/Kg	4/21/05	4/21/05
EPA 8260B	2-Hexanone	Not detected	59	0.19	ug/Kg	4/21/05	4/21/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	59	1.1	ug/Kg	4/21/05	4/21/05
EPA 8260B	Acetone	Not detected	120	3.3	ug/Kg	4/21/05	4/21/05
EPA 8260B	Benzene	Not detected	6	0.75	ug/Kg	4/21/05	4/21/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.82	ug/Kg	4/21/05	4/21/05
EPA 8260B	Bromoform	Not detected	6	0.95	ug/Kg	4/21/05	4/21/05
EPA 8260B	Bromomethane	Not detected	12	1.9	ug/Kg	4/21/05	4/21/05
EPA 8260B	Carbon disulfide	Not detected	6	1.3	ug/Kg	4/21/05	4/21/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.95	ug/Kg	4/21/05	4/21/05
EPA 8260B	Chlorobenzene	Not detected	6	0.58	ug/Kg	4/21/05	4/21/05
EPA 8260B	Chloroethane	Not detected	6	1.8	ug/Kg	4/21/05	4/21/05
EPA 8260B	Chloroform	Not detected	6	1.7	ug/Kg	4/21/05	4/21/05
EPA 8260B	Chloromethane	Not detected	6	2.1	ug/Kg	4/21/05	4/21/05
EPA 8260B	cis-1,2-Dichloroethene	Not detected	6	1.3	ug/Kg	4/21/05	4/21/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.56	ug/Kg	4/21/05	4/21/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.0	ug/Kg	4/21/05	4/21/05
EPA 8260B	Ethylbenzene	Not detected	6	0.76	ug/Kg	4/21/05	4/21/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.0	ug/Kg	4/21/05	4/21/05
EPA 8260B	Methylene chloride	Not detected	59	5.4	ug/Kg	4/21/05	4/21/05
EPA 8260B	Styrene	Not detected	6	0.82	ug/Kg	4/21/05	4/21/05
EPA 8260B	Tetrachloroethene	Not detected	6	0.64	ug/Kg	4/21/05	4/21/05
EPA 8260B	Toluene	Not detected	6	0.77	ug/Kg	4/21/05	4/21/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.6	ug/Kg	4/21/05	4/21/05

Run #: 0421C14  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed: 5/5/05 9:48:58 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOFT-1116

Sample Collection Date: 4/21/05

ARF: 47219

APPL ID: AX18393

QCG: \$86TTS-050421AC-86005

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.51	ug/Kg	4/21/05	4/21/05
EPA 8260B	Trichloroethene	Not detected	6	0.84	ug/Kg	4/21/05	4/21/05
EPA 8260B	Vinyl Acetate	Not detected	59	1.2	ug/Kg	4/21/05	4/21/05
EPA 8260B	Vinyl chloride	Not detected	6	2.0	ug/Kg	4/21/05	4/21/05
EPA 8260B	Xylenes	Not detected	18	0.80	ug/Kg	4/21/05	4/21/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	112	52-149		%	4/21/05	4/21/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	95.7	65-135		%	4/21/05	4/21/05
EPA 8260B	Surrogate recovery: Toluene-d8	93.4	65-135		%	4/21/05	4/21/05

Run #: 0421C14  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed: 5/5/05 9:48:58 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



**EPA 8260B**

Tetra Tech FW, Inc.  
1040 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1117

Sample Collection Date: 4/21/05

ARF: 47219

APPL ID: AX18394

QCG: S86TTS-050421AC-86005

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 23.8 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	7	1.1	ug/Kg	4/22/05	4/22/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	7	1.6	ug/Kg	4/22/05	4/22/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	7	0.63	ug/Kg	4/22/05	4/22/05
EPA 8260B	1,1-Dichloroethane	Not detected	7	1.5	ug/Kg	4/22/05	4/22/05
EPA 8260B	1,1-Dichloroethene	Not detected	7	1.0	ug/Kg	4/22/05	4/22/05
EPA 8260B	1,2-Dichloroethane	Not detected	7	0.94	ug/Kg	4/22/05	4/22/05
EPA 8260B	1,2-Dichloropropane	Not detected	7	0.81	ug/Kg	4/22/05	4/22/05
EPA 8260B	2-Butanone	Not detected	66	0.93	ug/Kg	4/22/05	4/22/05
EPA 8260B	2-Hexanone	Not detected	66	0.21	ug/Kg	4/22/05	4/22/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	66	1.2	ug/Kg	4/22/05	4/22/05
EPA 8260B	Acetone	Not detected	130	3.7	ug/Kg	4/22/05	4/22/05
EPA 8260B	Benzene	Not detected	7	0.83	ug/Kg	4/22/05	4/22/05
EPA 8260B	Bromodichloromethane	Not detected	7	0.91	ug/Kg	4/22/05	4/22/05
EPA 8260B	Bromoform	Not detected	7	1.0	ug/Kg	4/22/05	4/22/05
EPA 8260B	Bromomethane	Not detected	13	2.1	ug/Kg	4/22/05	4/22/05
EPA 8260B	Carbon disulfide	Not detected	7	1.4	ug/Kg	4/22/05	4/22/05
EPA 8260B	Carbon tetrachloride	Not detected	7	1.0	ug/Kg	4/22/05	4/22/05
EPA 8260B	Chlorobenzene	Not detected	7	0.64	ug/Kg	4/22/05	4/22/05
EPA 8260B	Chloroethane	Not detected	7	2.0	ug/Kg	4/22/05	4/22/05
EPA 8260B	Chloroform	Not detected	7	1.9	ug/Kg	4/22/05	4/22/05
EPA 8260B	Chloromethane	Not detected	7	2.4	ug/Kg	4/22/05	4/22/05
EPA 8260B	cis-1,2-Dichloroethane	Not detected	7	1.4	ug/Kg	4/22/05	4/22/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	7	0.62	ug/Kg	4/22/05	4/22/05
EPA 8260B	Dibromochloromethane	Not detected	7	1.1	ug/Kg	4/22/05	4/22/05
EPA 8260B	Ethylbenzene	Not detected	7	0.84	ug/Kg	4/22/05	4/22/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	7	1.2	ug/Kg	4/22/05	4/22/05
EPA 8260B	Methylene chloride	Not detected	66	6.0	ug/Kg	4/22/05	4/22/05
EPA 8260B	Styrene	Not detected	7	0.91	ug/Kg	4/22/05	4/22/05
EPA 8260B	Tetrachloroethene	Not detected	7	0.71	ug/Kg	4/22/05	4/22/05
EPA 8260B	Toluene	Not detected	7	0.85	ug/Kg	4/22/05	4/22/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	7	1.8	ug/Kg	4/22/05	4/22/05

Run #: 0421C15

Instrument: Chico

Sequence: C050418

Dilution Factor: 1

Initials: LF

Printed: 5/5/05 9:48:58 AM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1117

Sample Collection Date: 4/21/05

ARF: 47219

APPL ID: AX18394

QCG: \$86TTS-050421AC-36005

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	7	0.56	ug/Kg	4/22/05	4/22/05
EPA 8260B	Trichloroethene	Not detected	7	0.93	ug/Kg	4/22/05	4/22/05
EPA 8260B	Vinyl Acetate	Not detected	66	1.3	ug/Kg	4/22/05	4/22/05
EPA 8260B	Vinyl chloride	Not detected	7	2.2	ug/Kg	4/22/05	4/22/05
EPA 8260B	Xylenes	Not detected	20	0.89	ug/Kg	4/22/05	4/22/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	123	52-149		%	4/22/05	4/22/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	104	65-135		%	4/22/05	4/22/05
EPA 8260B	Surrogate recovery: Toluene-d8	92.7	65-135		%	4/22/05	4/22/05

Run #: 0421C15  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed: 5/5/05 9:48:58 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47219

Sample ID: 86-WOPT-1118

APPL ID: AX18395

Sample Collection Date: 4/21/05

QCQ: \$86TTW-050422AS-86045

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/22/05	4/22/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/22/05	4/22/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/22/05	4/22/05
EPA 8260B	1,1-Dichloroethane	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
EPA 8260B	1,1-Dichloroethene	Not detected	0.5	0.30	ug/L	4/22/05	4/22/05
EPA 8260B	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/22/05	4/22/05
EPA 8260B	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/22/05	4/22/05
EPA 8260B	2-Butanone	Not detected	5	0.6	ug/L	4/22/05	4/22/05
EPA 8260B	2-Hexanone	Not detected	5	0.92	ug/L	4/22/05	4/22/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/22/05	4/22/05
EPA 8260B	Acetone	Not detected	5	0.95	ug/L	4/22/05	4/22/05
EPA 8260B	Benzene	Not detected	0.5	0.16	ug/L	4/22/05	4/22/05
EPA 8260B	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/22/05	4/22/05
EPA 8260B	Bromoform	Not detected	0.5	0.14	ug/L	4/22/05	4/22/05
EPA 8260B	Bromomethane	Not detected	1	0.24	ug/L	4/22/05	4/22/05
EPA 8260B	Carbon disulfide	Not detected	0.5	0.2	ug/L	4/22/05	4/22/05
EPA 8260B	Carbon tetrachloride	Not detected	0.5	0.10	ug/L	4/22/05	4/22/05
EPA 8260B	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/22/05	4/22/05
EPA 8260B	Chloroethane	Not detected	0.5	0.21	ug/L	4/22/05	4/22/05
EPA 8260B	Chloroform	Not detected	0.5	0.16	ug/L	4/22/05	4/22/05
EPA 8260B	Chloromethane	Not detected	0.5	0.31	ug/L	4/22/05	4/22/05
EPA 8260B	cis-1,2-Dichloroethene	Not detected	0.5	0.16	ug/L	4/22/05	4/22/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/22/05	4/22/05
EPA 8260B	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
EPA 8260B	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/22/05	4/22/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
EPA 8260B	Methylene chloride	Not detected	5	0.35	ug/L	4/22/05	4/22/05
EPA 8260B	Styrene	Not detected	0.5	0.25	ug/L	4/22/05	4/22/05
EPA 8260B	Tetrachloroethene	Not detected	0.5	0.15	ug/L	4/22/05	4/22/05
EPA 8260B	Toluene	Not detected	0.5	0.17	ug/L	4/22/05	4/22/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05

Run #: 0422S08  
Instrument: Sweetpea  
Sequence: S050420  
Dilution Factor: 1  
Initials: LF

Printed 5/5/05 9:48:58 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1118  
Sample Collection Date: 4/21/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47219

APPL ID: AX18395

QCG: \$86TTW-050422AS-86045

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/22/05	4/22/05
EPA 8260B	Trichloroethene	Not detected	0.5	0.16	ug/L	4/22/05	4/22/05
EPA 8260B	Vinyl Acetate	Not detected	5	0.31	ug/L	4/22/05	4/22/05
EPA 8260B	Vinyl chloride	Not detected	0.5	0.23	ug/L	4/22/05	4/22/05
EPA 8260B	Xylenes	Not detected	1.5	0.19	ug/L	4/22/05	4/22/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	115	62-139		%	4/22/05	4/22/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	104	75-125		%	4/22/05	4/22/05
EPA 8260B	Surrogate recovery: Toluene-d8	102	75-125		%	4/22/05	4/22/05

Run #: 0422S08  
Instrument: Sweetpea  
Sequence: S050420  
Dilution Factor: 1  
Initials: LF

Printed: 5/5/05 9:48:58 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47219  
APPL ID: AX18373

Sample ID: 86-WOPT-592

Sample Collection Date: 4/21/05

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	500	50	0.27	mg/L	4/27/05	5/10/05
6010B	Calcium (Ca)	498 E	5	0.0272	mg/L	4/27/05	4/30/05
6010B	Iron (Fe)	28.2	0.1	0.0258	mg/L	4/27/05	4/30/05
6010B	Magnesium (Mg)	140	25	0.065	mg/L	4/27/05	4/29/05
6010B	Magnesium (Mg)	140 E	5	0.0129	mg/L	4/27/05	4/30/05
6010B	Potassium (K)	9.2	5	0.0995	mg/L	4/27/05	5/7/05
6010B	Sodium (Na)	47.7	5	0.1111	mg/L	4/27/05	5/7/05

E = The reported value exceeds linear range.

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2L-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: **86-WOPT-593**

Sample Collection Date: 4/21/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47219

APPL ID: **AX18374**

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	491	50	0.27	mg/L	4/27/05	5/10/05
6010B	Calcium (Ca)	528 E	5	0.0272	mg/L	4/27/05	4/30/05
6010B	Iron (Fe)	4.6	0.1	0.0258	mg/L	4/27/05	4/30/05
6010B	Magnesium (Mg)	89.5	5	0.0129	mg/L	4/27/05	4/30/05
6010B	Potassium (K)	14.7	5	0.0995	mg/L	4/27/05	5/7/05
6010B	Sodium (Na)	48.7	25	0.56	mg/L	4/27/05	5/7/05
6010B	Sodium (Na)	52.1 E	5	0.1111	mg/L	4/27/05	5/7/05

E = The reported value exceeds linear range.

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PL-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: **86-WOPT-594**

Sample Collection Date: 4/21/05

ARF: 47219

APPL ID: **AX18375**

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	318	25	0.14	mg/L	4/27/05	4/29/05
6010B	Calcium (Ca)	301 E	5	0.0272	mg/L	4/27/05	4/30/05
6010B	Iron (Fe)	14.8	0.1	0.0258	mg/L	4/27/05	4/30/05
6010B	Magnesium (Mg)	75.7	5	0.0129	mg/L	4/27/05	4/30/05
6010B	Potassium (K)	14.4	5	0.0995	mg/L	4/27/05	5/7/05
6010B	Sodium (Na)	49.1	25	0.56	mg/L	4/27/05	5/7/05
6010B	Sodium (Na)	52.1 E	5	0.1111	mg/L	4/27/05	5/7/05

E = The reported value exceeds linear range.

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PL-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-595**

Sample Collection Date: 4/21/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47219

**APPL ID: AX18376**

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	401	25	0.14	mg/L	4/27/05	4/29/05
6010B	Calcium (Ca)	385 E	5	0.0272	mg/L	4/27/05	4/30/05
6010B	Iron (Fe)	8.7	0.1	0.0258	mg/L	4/27/05	4/30/05
6010B	Magnesium (Mg)	72.4	5	0.0129	mg/L	4/27/05	4/30/05
6010B	Potassium (K)	14.4	5	0.0995	mg/L	4/27/05	5/7/05
6010B	Sodium (Na)	48.3	5	0.1111	mg/L	4/27/05	5/7/05

E = The reported value exceeds linear range.

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2L-F1-SC-MCRes/MCPQL-REG MDLs



## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: **86-WOPT-596**

ARF: 47219

APPL ID: **AX18377**

Sample Collection Date: 4/21/05

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	463	25	0.14	mg/L	4/27/05	4/30/05
6010B	Calcium (Ca)	444 E	5	0.0272	mg/L	4/27/05	4/30/05
6010B	Iron (Fe)	7.4	0.1	0.0258	mg/L	4/27/05	4/30/05
6010B	Magnesium (Mg)	118	25	0.065	mg/L	4/27/05	4/30/05
6010B	Magnesium (Mg)	113 E	5	0.0129	mg/L	4/27/05	4/30/05
6010B	Potassium (K)	8.0	5	0.0995	mg/L	4/27/05	5/7/05
6010B	Sodium (Na)	45.1	5	0.1111	mg/L	4/27/05	5/7/05

E = The reported value exceeds linear range.

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3L-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47219

Sample ID: **86-WOPT-1108**

APPL ID: **AX18385**

Sample Collection Date: 4/21/05

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	322	25	0.14	mg/L	4/26/05	4/30/05
6010B	Calcium (Ca)	315 E	5	0.0272	mg/L	4/27/05	4/30/05
6010B	Iron (Fe)	16.3	0.1	0.0258	mg/L	4/27/05	4/30/05
6010B	Magnesium (Mg)	98.0	5	0.0129	mg/L	4/27/05	4/30/05
6010B	Potassium (K)	13.5	5	0.0995	mg/L	4/27/05	5/7/05
6010B	Sodium (Na)	41.5	5	0.1111	mg/L	4/27/05	5/7/05

E = The reported value exceeds linear range.

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2L-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deore Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1109

Sample Collection Date: 4/21/05

ARF: 47219

APPL ID: AX18386

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	283	25	0.14	mg/L	5/12/05	5/19/05
6010B	Calcium (Ca)	261 E	5	0.0272	mg/L	5/12/05	5/19/05
6010B	Iron (Fe)	93.6	0.50	0.13	mg/L	5/12/05	5/19/05
6010B	Iron (Fe)	82.6 E	0.1	0.0258	mg/L	5/12/05	5/19/05
6010B	Magnesium (Mg)	156	25	0.065	mg/L	5/12/05	5/19/05
6010B	Magnesium (Mg)	142 E	5	0.0129	mg/L	5/12/05	5/19/05
6010B	Potassium (K)	9.3	5	0.0995	mg/L	5/12/05	5/19/05
6010B	Sodium (Na)	39.3	5	0.1111	mg/L	5/12/05	5/19/05

E = The reported value exceeds linear range.

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PL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 203  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-592

Sample Collection Date: 4/21/05

APPL ID: AX18373

ARF: 47219

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	20200	1000	80	ug/L	4/22/05	4/22/05
EPA 300.0	Nitrate	14900	200	15	ug/L	4/22/05	4/22/05
EPA 300.0	Nitrite	788	100	33	ug/L	4/22/05	4/22/05
EPA 300.0	Sulfate	256000 E	1000	90	ug/L	4/22/05	4/22/05
EPA 300.0	Sulfate	213000	5000	450	ug/L	4/22/05	4/22/05
EPA 310.1	Bicarbonate	382	5	0.787	mg/L	5/2/05	5/2/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	5/2/05	5/2/05

E = The reported value exceeds linear range.

Printed: 5/20/05 4:32:56 PM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-593

Sample Collection Date: 4/21/05

APPL ID: AX18374

ARF: 47219

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	39200	1000	80	ug/L	4/22/05	4/22/05
EPA 300.0	Nitrate	8080	200	15	ug/L	4/22/05	4/22/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/22/05	4/22/05
EPA 300.0	Sulfate	296000 E	1000	90	ug/L	4/22/05	4/22/05
EPA 300.0	Sulfate	246000	5000	450	ug/L	4/22/05	4/22/05
EPA 310.1	Bicarbonate	374	5	0.787	mg/L	5/2/05	5/2/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	5/2/05	5/2/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-594

Sample Collection Date: 4/21/05

APPL ID: AX18375

ARF: 47219

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	39300	1000	80	ug/L	4/22/05	4/22/05
EPA 300.0	Nitrate	11100	200	15	ug/L	4/22/05	4/22/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/22/05	4/22/05
EPA 300.0	Sulfate	294000 E	1000	90	ug/L	4/22/05	4/22/05
EPA 300.0	Sulfate	227000	5000	450	ug/L	4/22/05	4/22/05
EPA 310.1	Bicarbonate	369	5	0.787	mg/L	5/2/05	5/2/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	5/2/05	5/2/05

E = The reported value exceeds linear range.

Printed: 5/20/05 12:44:02 PM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-595

Sample Collection Date: 4/21/05

APPL ID: AX18376

ARF: 47219

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	37700	1000	80	ug/L	4/22/05	4/22/05
EPA 300.0	Nitrate	4310	200	15	ug/L	4/22/05	4/22/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/22/05	4/22/05
EPA 300.0	Sulfate	294000 E	1000	90	ug/L	4/22/05	4/22/05
EPA 300.0	Sulfate	244000	5000	450	ug/L	4/22/05	4/22/05
EPA 310.1	Bicarbonate	362	5	0.787	mg/L	5/2/05	5/2/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	5/2/05	5/2/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-596

Sample Collection Date: 4/21/05

APPL ID: AX18377

ARF: 47219

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	37100	1000	80	ug/L	4/22/05	4/22/05
EPA 300.0	Nitrate	4460	200	15	ug/L	4/22/05	4/22/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/22/05	4/22/05
EPA 300.0	Sulfate	281000 E	1000	90	ug/L	4/22/05	4/22/05
EPA 300.0	Sulfate	233000	5000	450	ug/L	4/22/05	4/22/05
EPA 310.1	Bicarbonate	331	5	0.787	mg/L	5/2/05	5/2/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	5/2/05	5/2/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs



## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-597

Sample Collection Date: 4/21/05

APPL ID: AX18378

ARF: 47219

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 16.6 Percent Moisture.)							
CLP MOIST	Moisture	16.6	2.0		%	4/21/05	4/21/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-598

Sample Collection Date: 4/21/05

APPL ID: AX18379

ARF: 47219

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 24.4 Percent Moisture.)							
CLP MOIST	Moisture	24.4	2.0		%	4/21/05	4/21/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-599

Sample Collection Date: 4/21/05

APPL ID: AX18380

ARF: 47219

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 18.4 Percent Moisture.)							
CLP MOIST	Moisture	18.4	2.0		%	4/21/05	4/21/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 38 Moffett Airfield

**Sample ID: 86-WOPT-600**

**APPL ID: AX18381**

Sample Collection Date: 4/21/05

ARF: 47219

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 14.0 Percent Moisture.)							
CLP MOIST	Moisture	14.0	2.0		%	4/21/05	4/21/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 26-WOPT-601

Sample Collection Date: 4/21/05

APPL ID: AX18382

ARF: 47219

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
SW846 9060	Total Organic Carbon	0.62	0.5	0.129	mg/L	5/18/05	5/18/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1108

Sample Collection Date: 4/21/05

APPL ID: AX18335

ARF: 47219

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	41300	1000	80	ug/L	4/22/05	4/22/05
EPA 300.0	Nitrate	2390	200	15	ug/L	4/22/05	4/22/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/22/05	4/22/05
EPA 300.0	Sulfate	637000 E	1000	90	ug/L	4/22/05	4/22/05
EPA 300.0	Sulfate	509000	10000	900	ug/L	4/23/05	4/23/05
EPA 310.1	Bicarbonate	388	5	0.787	mg/L	5/2/05	5/2/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	5/2/05	5/2/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1109

Sample Collection Date: 4/21/05

APPL ID: AX18386

ARF: 47219

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	41700	1000	80	ug/L	4/22/05	4/22/05
EPA 300.0	Nitrate	5740	200	15	ug/L	4/22/05	4/22/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/22/05	4/22/05
EPA 300.0	Sulfate	491000 E	1000	90	ug/L	4/22/05	4/22/05
EPA 300.0	Sulfate	417000	5000	450	ug/L	4/22/05	4/22/05
EPA 310.1	Bicarbonate	339	5	0.787	mg/L	5/2/05	5/2/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	5/2/05	5/2/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1112

Sample Collection Date: 4/21/05

APPL ID: AX18389

ARF: 47219

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 20.8 Percent Moisture.)							
CLP MOIST	Moisture	20.8	2.0		%	4/21/05	4/21/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs



## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1113

Sample Collection Date: 4/21/05

APPL ID: AX18390

ARF: 47219

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 19.0 Percent Moisture.)							
CLP MOIST	Moisture	19.0	2.0		%	4/21/05	4/21/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1114

Sample Collection Date: 4/21/05

APPL ID: AX18391

ARF: 47219

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 18.2 Percent Moisture.)							
CLP MOIST	Moisture	18.2	2.0		%	4/21/05	4/21/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1115

Sample Collection Date: 4/21/05

APPL ID: AX18392

ARF: 47219

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 21.2 Percent Moisture.)							
CLP MOIST	Moisture	21.2	2.0		%	4/21/05	4/21/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1116

Sample Collection Date: 4/21/05

APPL ID: AX18393

ARF: 47219

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 15.5 Percent Moisture.)							
CLP MOIST	Moisture	15.5	2.0		%	4/21/05	4/21/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WCPT-1117

Sample Collection Date: 4/21/05

APPL ID: AX18394

ARF: 47219

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 23.8 Percent Moisture.)							
CLP MOIST	Moisture	23.8	2.0		%	4/21/05	4/21/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1118

Sample Collection Date: 4/21/05

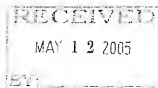
APPL ID: AX18395

ARF: 47219

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
SW846 9060	Total Organic Carbon	1.3	0.5	0.129	mg/L	5/18/05	5/18/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs



May 9, 2005

Service Request No: K2502991

Robert Wise  
APPL, Inc.  
4203 W. Swift Avenue  
Fresno, CA 93722

**RE: 47219**

Dear Robert:

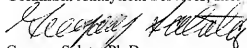
Enclosed are the results of the sample(s) submitted to our laboratory on April 23, 2005. For your reference, these analyses have been assigned our service request number K2502991.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAC standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3376.

Respectfully submitted,

**Columbia Analytical Services, Inc.**



Gregory Salata, Ph.D.  
Project Chemist

GS/dj

Page 1 of 15

COLUMBIA ANALYTICAL SERVICES, INC.

Client: Agriculture & Priority Pollutants Labs  
Project: 47219  
Sample Matrix: Soil

Service Request No.: K2502991  
Date Received: 04/23/05

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier III validation deliverables including summary forms and all of the associated raw data for each of the analyses. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Ten soil samples were received for analysis at Columbia Analytical Services on 04/23/05. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

General Chemistry Parameters

No anomalies associated with the analysis of these samples were observed.

Approved by



Date

5/19/05



# COLUMBIA ANALYTICAL SERVICES, INC.

## Analytical Report

Client : Agriculture & Priority Pollutants Labs  
 Project Name : NA  
 Project Number : 47219  
 Sample Matrix : SOIL

Service Request : K2502991  
 Date Collected : 04/21/05  
 Date Received : 04/23/05

### Carbon, Total Organic

Analysis Method : Walkley-Black  
 Test Notes :

Units : mg/Kg (ppm)  
 Basis : Dry

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
86-WOPT-597	K2502991-001	2000	900	1	05/03/05	ND	
86-WOPT-598	K2502991-002	2000	900	1	05/03/05	2200	
86-WOPT-599	K2502991-003	2000	900	1	05/03/05	ND	
86-WOPT-600	K2502991-004	2000	900	1	05/03/05	ND	
86-WOPT-1112	K2502991-005	2000	900	1	05/03/05	1690	J
86-WOPT-1113	K2502991-006	2000	900	1	05/03/05	3960	
86-WOPT-1114	K2502991-007	2000	900	1	05/03/05	3000	
86-WOPT-1115	K2502991-008	2000	900	1	05/03/05	ND	
86-WOPT-1116	K2502991-009	2000	900	1	05/03/05	1120	J
86-WOPT-1117	K2502991-010	2000	900	1	05/03/05	2330	
Method Blank	K2502991-MB	2000	900	1	05/03/05	ND	

00010

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Air Field, Building 88, CTO 86  
**Collection Date:** April 21, 2005  
**LDC Report Date:** May 26, 2005  
**Matrix:** Water  
**Parameters:** Volatiles  
**Validation Level:** EPA Level III & IV  
**Laboratory:** APPL, Inc.

**Sample Delivery Group (SDG):** 47219

**Sample Identification**

86-WOPT-591	86-WOPT-1109MS
86-WOPT-592**	86-WOPT-1109MSD
86-WOPT-592DL**	
86-WOPT-593	
86-WOPT-593DL	
86-WOPT-594	
86-WOPT-594DL	
86-WOPT-595	
86-WOPT-595DL	
86-WOPT-596**	
86-WOPT-596DL**	
86-WOPT-1106	
86-WOPT-1107	
86-WOPT-1107DL	
86-WOPT-1108**	
86-WOPT-1108DL**	
86-WOPT-1109**	
86-WOPT-1109DL**	
86-WOPT-1110	
86-WOPT-1111	

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 22 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Contract Laboratory Program Statement of Work (SOW) OLM04.2 for Volatiles.

This review follows USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999); the following subsections correlate to the above guidelines.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 30.0% for all compounds with the following exceptions:

Date	Compound	%RSD	Associated Samples	Flag	A or P
4/21/05	2-Hexanone	32	86-WOPT-591 86-WOPT-592** 86-WOPT-593 86-WOPT-594 86-WOPT-595 86-WOPT-596** 86-WOPT-1106 86-WOPT-1107 86-WOPT-1108** 86-WOPT-1109** 86-WOPT-1110 86-WOPT-1111 86-WOPT-1109MSD 86-WOPT-1109MSD 050421CBLK-1 050421DBLK-1	J (all detects) UJ (all non-detects)	A

Average relative response factors (RRF) for all volatile target compounds and system monitoring compounds were within validation criteria.

## IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 25.0% with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
4/22/05	Bromoform	29	86-WOPT-596** 86-WOPT-1107	J (all detects) UJ (all non-detects)	A
	Chloroethane	45	86-WOPT-1108** 86-WOPT-1109** 86-WOPT-1110 86-WOPT-1111 86-WOPT-1109MS 86-WOPT-1109MSD 050421DBLK-1	J (all detects) UJ (all non-detects)	

All of the continuing calibration RRF values were within validation criteria.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the SOW. All surrogate recoveries (%R) were within QC limits with the following exceptions:

Sample	Surrogate	%R (Limits)	Compound	Flag	A or P
050421CBLK-1	Toluene-d8	134 (75-125)	All TCL compounds	J (all detects)	P
86-WOPT-591	Toluene-d8	127 (75-125)	All TCL compounds	J (all detects)	P
86-WOPT-1106	Toluene-d8	130 (75-125)	All TCL compounds	J (all detects)	P
86-WOPT-594	Toluene-d8	127 (75-125)	All TCL compounds	J (all detects)	A

## VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Compound	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
86-WOPT-1109MS/MSD (86-WOPT-1109**)	1,1-Dichloroethene	52.0 (75-145)	47.0 (75-145)	-	J (all detects) UJ (all non-detects)	A

### VIII. Laboratory Control Samples (LCS)

Although laboratory control samples were not required by the method, laboratory control samples were reported by the laboratory. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

### IX. Regional Quality Assurance and Quality Control

Not applicable.

### X. Internal Standards

All internal standard areas and retention times were within QC limits.

### XI. Target Compound Identifications

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

### XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
86-WOPT-592** 86-WOPT-1107	cis-1,2-Dichloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	A
86-WOPT-593 86-WOPT-594 86-WOPT-595 86-WOPT-1108** 86-WOPT-1109**	cis-1,2-Dichloroethene Trichloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects)	A
86-WOPT-596**	1,1,2-Trichloro-1,2,2-trifluoroethane cis-1,2-Dichloroethene Trichloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects) J (all detects)	A

Raw data were not evaluated for the samples reviewed by Level III criteria.

### XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

#### XIV. System Performance

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

#### XV. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

#### XVI. Field Duplicates

Samples 86-WOPT-593 and 86-WOPT-594 and samples 86-WOPT-593DL and 86-WOPT-594DL were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	86-WOPT-593	86-WOPT-594	
1,1,1-Trichloroethane	0.91	0.91	0
1,1,2-Trichloro-1,2,2-trifluoroethane	25	25	0
1,1-Dichloroethane	14	14	0
1,1-Dichloroethene	22	21	5
1,2-Dichloroethane	1.3	1.3	0
Chloroform	0.25	0.26	4
cis-1,2-Dichloroethene	410	410	0
Methyl-tert-butyl ether	1.2	1.2	0
Tetrachloroethene	7.1	7.3	3
trans-1,2-Dichloroethene	2.9	2.9	0
Trichloroethene	830	830	0

Compound	Concentration (ug/L)		RPD
	86-WOPT-593DL	86-WOPT-594DL	
cis-1,2-Dichloroethene	480	480	0
Trichloroethene	1100	1100	0

## XVII. Field Blanks

Samples 86-WOPT-591 and 86-WOPT-1106 were identified as trip blanks. No volatile contaminants were found in these blanks.



**Moffett Air Field, Building 88, CTO 86**  
**Volatiles - Data Qualification Summary - SDG 47219**

SDG	Sample	Compound	Flag	A or P	Reason
47219	86-WOPT-591 86-WOPT-592** 86-WOPT-593 86-WOPT-594 86-WOPT-595 86-WOPT-596** 86-WOPT-1106 86-WOPT-1107 86-WOPT-1108** 86-WOPT-1109** 86-WOPT-1110 86-WOPT-1111	2-Hexanone	J (all detects) UJ (all non-detects)	A	Initial calibration (%RSD)
47219	86-WOPT-596** 86-WOPT-1107 86-WOPT-1108** 86-WOPT-1109** 86-WOPT-1110 86-WOPT-1111	Bromoform Chloroethane	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
47219	86-WOPT-591 86-WOPT-1106	All TCL compounds	J (all detects)	P	Surrogate spikes (%R)
47219	86-WOPT-594	All TCL compounds	J (all detects)	A	Surrogate spikes (%R)
47219	86-WOPT-1109**	1,1-Dichloroethene	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicates (%R)
47219	86-WOPT-592** 86-WOPT-1107	cis-1,2-Dichloroethene	J (all detects)	A	Compound quantitation and CRQLs
47219	86-WOPT-593 86-WOPT-594 86-WOPT-595 86-WOPT-1108** 86-WOPT-1109**	cis-1,2-Dichloroethene Trichloroethene	J (all detects) J (all detects)	A	Compound quantitation and CRQLs
47219	86-WOPT-596**	1,1,2-Trichloro-1,2,2-trifluoroethane cis-1,2-Dichloroethene Trichloroethene	J (all detects) J (all detects) J (all detects)	A	Compound quantitation and CRQLs

**Moffett Air Field, Building 88, CTO 86**  
**Volatiles - Laboratory Blank Data Qualification Summary - SDG 47219**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Air Field, Building 88, CTO 86  
**Collection Date:** April 21, 2005  
**LDC Report Date:** May 26, 2005  
**Matrix:** Soil/Water  
**Parameters:** Volatiles  
**Validation Level:** EPA Level III & IV  
**Laboratory:** APPL, Inc.

**Sample Delivery Group (SDG):** 47219

**Sample Identification**

86-WOPT-597  
86-WOPT-598  
86-WOPT-599  
86-WOPT-600\*\*  
86-WOPT-601  
86-WOPT-1112  
86-WOPT-1113  
86-WOPT-1114  
86-WOPT-1115  
86-WOPT-1116  
86-WOPT-1117  
86-WOPT-1118  
86-WOPT-597MS  
86-WOPT-597MSD

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 12 soil samples and 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 15.0% for each individual compound and less than or equal to 30.0% for calibration check compounds (CCCs).

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination ( $r^2$ ) was greater than or equal to 0.990 .

Average relative response factors (RRF) for all system performance check compounds (SPCCs) were within method and validation criteria.

## IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 20.0% for all compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
4/22/05	Acetone	65	All water samples in SDG 47219	J (all detects) UJ (all non-detects)	A

All of the continuing calibration RRF values for all system performance check compounds (SPCCs) were within method and validation criteria.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Analysis Date	Compound TIC (RT in minutes)	Concentration	Associated Samples
050421ABLK-1SC	4/21/05	Styrene	22 ug/Kg	86-WOPT-597 86-WOPT-598 86-WOPT-599 86-WOPT-600** 86-WOPT-1112 86-WOPT-1113 86-WOPT-1114 86-WOPT-1115 86-WOPT-1116 86-WOPT-1117
050422ABLK-1WS	4/22/05	Acetone	6.7 ug/L	86-WOPT-601 86-WOPT-1118

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated method blanks.

#### VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

#### VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Compound	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
86-WOPT-597MS/MSD (86-WOPT-597)	Trichloroethene	-	-	34.5 (≤30)	J (all detects) UJ (all non-detects)	A

#### VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### IX. Regional Quality Assurance and Quality Control

Not applicable.

## **X. Internal Standards**

All internal standard areas and retention times were within QC limits.

## **XI. Target Compound Identifications**

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XII. Compound Quantitation and CRQLs**

All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XIII. Tentatively Identified Compounds (TICs)**

Tentatively identified compounds were not reported by the laboratory.

## **XIV. System Performance**

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XV. Overall Assessment**

Data flags are summarized at the end of this report if data has been qualified.

## **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

## **XVII. Field Blanks**

Samples 86-WOPT-601 and 86-WOPT-1118 were identified as equipment rinsates. No volatile contaminants were found in these blanks.

**Moffett Air Field, Building 88, CTO 86**  
**Volatiles - Data Qualification Summary - SDG 47219**

SDG	Sample	Compound	Flag	A or P	Reason
47219	86-WOPT-601 86-WOPT-1118	Acetone	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
47219	86-WOPT-597	Trichloroethene	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicates (RPD)

**Moffett Air Field, Building 88, CTO 86**  
**Volatiles - Laboratory Blank Data Qualification Summary - SDG 47219**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.**  
**Data Validation Report**

**Project/Site Name:** Moffett Air Field, Building 88, CTO 86

**Collection Date:** April 21, 2005

**LDC Report Date:** May 26, 2005

**Matrix:** Water

**Parameters:** Metals

**Validation Level:** EPA Level III & IV

**Laboratory:** APPL, Inc.

**Sample Delivery Group (SDG):** 47219

**Sample Identification**

86-WOPT-592\*\*

86-WOPT-593

86-WOPT-594

86-WOPT-595

86-WOPT-596\*\*

86-WOPT-1108\*\*

86-WOPT-1109\*\*

86-WOPT-592DL\*\*

86-WOPT-593DL

86-WOPT-594DL

86-WOPT-595DL

86-WOPT-596DL\*\*

86-WOPT-1108DL\*\*

86-WOPT-1109DL\*\*

86-WOPT-1109MS

86-WOPT-1109MSD

\*\*Indicates sample underwent EPA Level IV review



## Introduction

This data review covers 16 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 6010B for Metals. The metals analyzed were Calcium, Iron, Magnesium, Potassium, and Sodium.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

## III. Blanks

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Calcium Sodium	0.039 mg/L 0.24 mg/L	86-WOPT-592** 86-WOPT-593 86-WOPT-594 86-WOPT-595 86-WOPT-596** 86-WOPT-1108** 86-WOPT-592DL** 86-WOPT-593DL 86-WOPT-594DL 86-WOPT-595DL 86-WOPT-596DL** 86-WOPT-1108DL**
PB (prep blank)	Calcium Potassium	0.030 mg/L 0.11 mg/L	86-WOPT-1109** 86-WOPT-1109DL**

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or were significantly greater ( >5X blank contaminants) than the concentrations found in the associated method blanks.

## IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

## V. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
86-WOPT-1109MS/MSD (86-WOPT-592** 86-WOPT-593 86-WOPT-594 86-WOPT-595 86-WOPT-596** 86-WOPT-1108** 86-WOPT-1109** 86-WOPT-592DL** 86-WOPT-593DL 86-WOPT-594DL 86-WOPT-595DL 86-WOPT-596DL** 86-WOPT-1108DL** 86-WOPT-1109DL**)	Calcium	-	-	28 (≤20)	J (all detects) UJ (all non-detects)	A
86-WOPT-1109MS/MSD (86-WOPT-592** 86-WOPT-593 86-WOPT-594 86-WOPT-595 86-WOPT-596** 86-WOPT-1108** 86-WOPT-1109** 86-WOPT-1109DL**)	Iron	-	-	24 (≤20)	J (all detects) UJ (all non-detects)	A
86-WOPT-1109MS/MSD (86-WOPT-592** 86-WOPT-593 86-WOPT-594 86-WOPT-595 86-WOPT-596** 86-WOPT-1108** 86-WOPT-1109** 86-WOPT-592DL** 86-WOPT-596DL** 86-WOPT-1109DL**)	Magnesium	-	-	44 (≤20)	J (all detects) UJ (all non-detects)	A
86-WOPT-1109MS/MSD (86-WOPT-592** 86-WOPT-593 86-WOPT-594 86-WOPT-595 86-WOPT-596** 86-WOPT-1108** 86-WOPT-1109** 86-WOPT-592DL** 86-WOPT-596DL** 86-WOPT-1109DL**)	Potassium	-	38.0 (80-120)	-	J (all detects) UJ (all non-detects)	A

## VI. Duplicate Sample Analysis

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

## VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Internal Standards

ICP-MS was not utilized in this SDG.

## IX. Furnace Atomic Absorption QC

Graphite furnace atomic absorption was not utilized in this SDG.

## X. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met.

## XI. Sample Result Verification

All sample result verification met validation criteria with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
86-WOPT-592** 86-WOPT-596**	Calcium Magnesium	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects)	A
86-WOPT-593 86-WOPT-594	Calcium Sodium	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects)	A
86-WOPT-595 86-WOPT-1108**	Calcium	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	A
86-WOPT-1109**	Calcium Iron Magnesium	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects) J (all detects)	A

Raw data were not evaluated for samples reviewed by Level III criteria.

## XII. Overall Assessment of Data

Data flags have been summarized at the end of this report.

## XIII. Field Duplicates

Samples 86-WOPT-593 and 86-WOPT-594 and samples 86-WOPT-593DL and 86-WOPT-594DL were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:

Compound	Concentration (mg/L)		RPD
	86-WOPT-593	86-WOPT-594	
Calcium	528	301	55
Iron	4.6	14.8	105
Magnesium	89.5	75.7	17
Potassium	14.7	14.4	2
Sodium	52.1	52.1	0

Compound	Concentration (mg/L)		RPD
	86-WOPT-593DL	86-WOPT-594DL	
Calcium	491	318	43
Sodium	48.7	49.1	1

## XIV. Field Blanks

No field blanks were identified in this SDG.

**Moffett Air Field, Building 88, CTO 86**  
**Metals - Data Qualification Summary - SDG 47219**

SDG	Sample	Analyte	Flag	A or P	Reason
47219	86-WOPT-592** 86-WOPT-593 86-WOPT-594 86-WOPT-595 86-WOPT-596** 86-WOPT-1108** 86-WOPT-1109** 86-WOPT-592DL** 86-WOPT-593DL 86-WOPT-594DL 86-WOPT-595DL 86-WOPT-596DL** 86-WOPT-1108DL** 86-WOPT-1109DL**	Calcium	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicates (RPD)
47219	86-WOPT-592** 86-WOPT-593 86-WOPT-594 86-WOPT-595 86-WOPT-596** 86-WOPT-1108** 86-WOPT-1109** 86-WOPT-1109DL**	Iron	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicates (RPD)
47219	86-WOPT-592** 86-WOPT-593 86-WOPT-594 86-WOPT-595 86-WOPT-596** 86-WOPT-1108** 86-WOPT-1109** 86-WOPT-592DL** 86-WOPT-596DL** 86-WOPT-1109DL**	Magnesium	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicates (RPD)
47219	86-WOPT-592** 86-WOPT-593 86-WOPT-594 86-WOPT-595 86-WOPT-596** 86-WOPT-1108** 86-WOPT-1109**	Potassium	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicates (%R)
47219	86-WOPT-592** 86-WOPT-596**	Calcium Magnesium	J (all detects) J (all detects)	A	Sample result verification
47219	86-WOPT-593 86-WOPT-594	Calcium Sodium	J (all detects) J (all detects)	A	Sample result verification
47219	86-WOPT-595 86-WOPT-1108**	Calcium	J (all detects)	A	Sample result verification

SDG	Sample	Analyte	Flag	A or P	Reason
47219	86-WOPT-1109**	Calcium Iron Magnesium	J (all detects) J (all detects) J (all detects)	A	Sample result verification

**Moffett Air Field, Building 88, CTO 86**

**Metals - Laboratory Blank Data Qualification Summary - SDG 47219**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Air Field, Building 88, CTO 86  
**Collection Date:** April 21, 2005  
**LDC Report Date:** May 27, 2005  
**Matrix:** Soil/Water  
**Parameters:** Wet Chemistry  
**Validation Level:** EPA Level III & IV  
**Laboratory:** APPL, Inc./Columbia Analytical Services, Inc.

**Sample Delivery Group (SDG):** 47219/K2502991

**Sample Identification**

86-WOPT-592**	86-WOPT-593DL
86-WOPT-593	86-WOPT-594DL
86-WOPT-594	86-WOPT-595DL
86-WOPT-595	86-WOPT-596DL**
86-WOPT-596**	86-WOPT-1108DL**
86-WOPT-597	86-WOPT-1109DL**
86-WOPT-598	86-WOPT-597DUP
86-WOPT-599	86-WOPT-1109MS
86-WOPT-600**	86-WOPT-1109MSD
86-WOPT-601	
86-WOPT-1108**	
86-WOPT-1109**	
86-WOPT-1112	
86-WOPT-1113	
86-WOPT-1114	
86-WOPT-1115	
86-WOPT-1116	
86-WOPT-1117	
86-WOPT-1118	
86-WOPT-592DL**	

\*\*Indicates sample underwent EPA Level IV review



## Introduction

This data review covers 11 soil samples and 18 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 300.0 for Chloride, Nitrate, Nitrite, and Sulfate, EPA Method 310.1 for Carbonate and Bicarbonate, and Walkley-Black method and EPA SW 846 Method 9060 for Total Organic Carbon.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section IX.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

### a. Initial Calibration

All criteria for the initial calibration of each method were met.

### b. Calibration Verification

Calibration verification frequency and analysis criteria were met for each method when applicable.

## III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the method blanks with the following exceptions:

Method Blank ID	Analyte	Concentration	Associated Samples
ICB/CCB	Total organic carbon	0.323 mg/L	86-WOPT-601 86-WOPT-1118

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater ( $>5X$  blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
86-WOPT-601	Total organic carbon	0.62 mg/L	0.62U mg/L
86-WOPT-1118	Total organic carbon	1.3 mg/L	1.3U mg/L

## IV. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spika ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
86-WOPT-1109MS/MSD (86-WOPT-592** 86-WOPT-593 86-WOPT-594 86-WOPT-595 86-WOPT-596** 86-WOPT-1108** 86-WOPT-1109** 86-WOPT-592DL** 86-WOPT-593DL 86-WOPT-594DL 86-WOPT-595DL 86-WOPT-596DL** 86-WOPT-1108DL** 86-WOPT-1109DL**)	Sulfate	75 (80-120)	75 (80-120)	-	J (all detects) UJ (all non-detects)	A

#### V. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

#### VI. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### VII. Sample Result Verification

All sample result verification met validation criteria with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
86-WOPT-592** 86-WOPT-593 86-WOPT-594 86-WOPT-595 86-WOPT-596** 86-WOPT-1108** 86-WOPT-1109**	Sulfate	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	A

Raw data were not evaluated for the samples reviewed by Level III criteria.

#### VIII. Overall Assessment of Data

Data flags are summarized at the end of this report.

#### IX. Field Duplicates

Samples 86-WOPT-593 and 86-WOPT-594 and samples 86-WOPT-593DL and 86-WOPT-594DL were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration (ug/L)		RPD
	86-WOPT-593	86-WOPT-594	
Chloride	39200	39300	0
Nitrate as N	8080	11100	31
Sulfate	296000	294000	1

Analyte	Concentration (mg/L)		RPD
	86-WOPT-593	86-WOPT-594	
Bicarbonate	374	369	1

Analyte	Concentration (ug/L)		RPD
	86-WOPT-593DL	86-WOPT-594DL	
Sulfate	246000	227000	8

## X. Field Blanks

Samples 86-WOPT-601 and 86-WOPT-1118 were identified as equipment rinsates. No contaminant concentrations were found in these blanks with the following exceptions:

Equipment Rinse ID	Analyte	Concentration (mg/L)
86-WOPT-601	Total organic carbon	0.62
86-WOPT-1118	Total organic carbon	1.3

**Moffett Air Field, Building 88, CTO 86**  
**Wet Chemistry - Data Qualification Summary - SDG 47219/K2502991**

SDG	Sample	Analyte	Flag	A or P	Reason
47219/ K2502991	86-WOPT-592** 86-WOPT-593 86-WOPT-594 86-WOPT-595 86-WOPT-596** 86-WOPT-1108** 86-WOPT-1109** 86-WOPT-592DL** 86-WOPT-593DL 86-WOPT-594DL 86-WOPT-595DL 86-WOPT-596DL** 86-WOPT-1108DL** 86-WOPT-1109DL**	Sulfate	J (all detects) UJ (all non-detects)	A	Matrix spike, Matrix spike duplicates (%R)
47219/ K2502991	86-WOPT-592** 86-WOPT-593 86-WOPT-594 86-WOPT-595 86-WOPT-596** 86-WOPT-1108** 86-WOPT-1109**	Sulfate	J (all detects)	A	Sample result verification

**Moffett Air Field, Building 88, CTO 86**  
**Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 47219/K2502991**

SDG	Sample	Analyte	Modified Final Concentration	A or P
47219/ K2502991	86-WOPT-601	Total organic carbon	0.62U mg/L	A
47219/ K2502991	86-WOPT-1118	Total organic carbon	1.3U mg/L	A



**TETRA TECH**  
1288 Colorado Blvd.  
Berkeley, CA 94701 (510) 524-6600

# CHAIN-OF-CUSTODY RECORD

NUMBER **10385**

PROJECT NAME		PURCHASE ORDER NO.		PROJECT NO.		ANALYSES REQUIRED		LABORATORY NAME		Project Information Section Do not submit to Laboratory	
SAMPLE ID	DATE COLLECTED	TIME COLLECTED	NO OF CONTAINERS	LEVEL	T	T		COMMENTS	LOCATION	DEPTH START END	QC
SAMPLE NAME	PROJECT LOCATION	PROJECT CONTACT	PROJECT CONTACT PHONE NUMBER	PROJECT CONTACT EMAIL ADDRESS	1	2	3	4	5	6	7
86-WOPT-602	4/26/02	6:45	3	1	1	1	1	1	1	1	1
86-WOPT-603	4/26/02	6:50	5	1	1	1	1	1	1	1	1
86-WOPT-604	4/26/02	6:55	5	1	1	1	1	1	1	1	1
86-WOPT-605	4/26/02	7:00	5	1	1	1	1	1	1	1	1
86-WOPT-606	4/26/02	7:05	5	1	1	1	1	1	1	1	1
86-WOPT-607	4/26/02	7:10	5	1	1	1	1	1	1	1	1
86-WOPT-608	4/26/02	7:15	5	1	1	1	1	1	1	1	1
86-WOPT-609	4/26/02	7:20	5	1	1	1	1	1	1	1	1
LABORATORY INSTRUCTIONS/COMMENTS											
RECEIVED BY (Signature) _____ COMPANY _____ DATE _____ RECEIVED BY (Signature) _____ COMPANY _____ DATE _____ RECEIVED BY (Signature) _____ COMPANY _____ DATE _____ RECEIVED BY (Signature) _____ COMPANY _____ DATE _____											
CONFIRMATION 10 DAY TATUN ADVISORY REVIEW SAMPLE CONDITION: <input checked="" type="checkbox"/> INTACT <input type="checkbox"/> BROKEN TEMPERATURE: _____ COOLER SEAL: <input checked="" type="checkbox"/> INTACT <input type="checkbox"/> BROKEN											
SAMPLING COMMENT: Bldg. 88 OPT											

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management

0047233-12



**TETRA TECH**  
11300 Columbia Street, Suite 100  
San Diego, CA 92121 (619) 234-8606

# CHAIN-OF-CUSTODY RECORD

NUMBER **10383**

PROJECT NAME		PURCHASE ORDER NO		PROJECT NO		ANALYSES REQUIRED		LABORATORY NAME		Project Information		
Building 58		055432		1990 0860		CCL: Cap and oil		APPL		Section Do not submit to Laboratory		
PROJECT LOCATION		PROJECT NO		PROJECT NO		ANALYSES REQUIRED		LABORATORY ID (FOR LABORATORY)				
Moffett Airfield, CA		1990 0860		1990 0860		CCL: Cap and oil		41033				
SAMPLER NAME		SAMPLER NO		SAMPLER NO		ANALYSES REQUIRED		LABORATORY ID (FOR LABORATORY)				
Mark Cutler		C-01-03		C-01-03		CCL: Cap and oil		41033				
PROJECT CONTACT		PROJECT CONTACT PHONE NUMBER		PROJECT CONTACT PHONE NUMBER		ANALYSES REQUIRED		LABORATORY ID (FOR LABORATORY)				
Lynn Jefferson		(409) 756-7553		(409) 756-7553		CCL: Cap and oil		41033				
SAMPLE ID	DATE COLLECTED	TIME COLLECTED	NO OF CONTAINERS	LEVEL	T	Y	P	A	COMMENTS	LOCATION	DEPTH START END	QC
56-WOPT-1119	4/22/05	0728	3	X	W	24				Trip Blank	-	18
56-WOPT-1120	4/22/05	0731	5	X	W	24				CPT-58-18	8	10 29
56-WOPT-1121	4/22/05	0744	5	X	W	24				CPT-58-18	14	16 29
56-WOPT-1122	4/22/05	0748	5	X	W	24				CPT-58-18	14	16 29
56-WOPT-1123	4/22/05	0759	15	X	W	24				CPT-58-18	15	20 29
56-WOPT-1124	4/22/05	0814	5	X	W	24				CPT-58-18	24	26 29
56-WOPT-1125	4/22/05	0828	5	X	W	24				CPT-58-18	20	22 29
56-WOPT-1126	4/22/05	0849	5	X	W	24				CPT-58-18	42	44 29
56-WOPT-1127	4/22/05	0908	5	X	W	24				CPT-58-18	55	56 29
LABORATORY INSTRUCTIONS/COMMENTS									SAMPLING COMMENT:			
Anions: sulfate, chloride, nitrate, nitrite									Bldg 58			
Metal cations: iron, magnesium, potassium, sodium									CPT			
COMPOSITE DESCRIPTION									Groundwater			
Anions, metals & alkalinity on 10 day TAT												
TEMPERATURE: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN												
COOLER SEAL: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN												
SAMPLE CONDITION UPON RECEIPT (FOR LABORATORY)												
RELINQUISHED BY (Signature)												
DATE												
TIME												
COMPANY												
RELINQUISHED BY (Signature)												
DATE												
TIME												
COMPANY												

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management

DOAN-22-...

1239 Columbus Street, Suite 503  
San Diego, CA 92101 (619) 234-8406

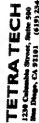
**NUMBER** 10768

## CHAIN-OF-CUSTODY RECORD

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management

0047233-12





NUMBER 10384

## CHAIN-OF-CUSTODY RECORD

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management

Data Validation Package  
for  
Moffett Air Field, WATS Building 88, CTO 86  
ARF 47233

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## Case Narrative

ARF: 47233

Project: 1990.086D WATS Bldg S8 Moffett Airfield

State Certification Number: CA1312

Results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

### Sample Receipt Information:

The sample group was received April 22, 2005, at 3.5°C and 5.0°C. The samples were assigned Analytical Request Form (ARF) number 47233. The sample numbers and requested analyses were compared to the chains of custody. The soil TOC analysis was sub-contracted to Columbia Analytical Laboratory. No exception was noted.

Sample Table

CLIENT ID	APPL ID	Matrix	Date Sampled	Date Received
86-WOPT-1119	AX18558	WATER	4/22/05	4/22/05
86-WOPT-1120	AX18559	WATER	4/22/05	4/22/05
86-WOPT-1121	AX18560	WATER	4/22/05	4/22/05
86-WOPT-1122	AX18561	WATER	4/22/05	4/22/05
86-WOPT-1123	AX18562	WATER	4/22/05	4/22/05
86-WOPT-1124	AX18563	WATER	4/22/05	4/22/05
86-WOPT-1125	AX18564	WATER	4/22/05	4/22/05
86-WOPT-1126	AX18565	WATER	4/22/05	4/22/05
86-WOPT-1127	AX18566	WATER	4/22/05	4/22/05
86-WOPT-602	AX18567	WATER	4/22/05	4/22/05
86-WOPT-603	AX18568	WATER	4/22/05	4/22/05
86-WOPT-604	AX18569	WATER	4/22/05	4/22/05
86-WOPT-605	AX18570	WATER	4/22/05	4/22/05
86-WOPT-606	AX18571	WATER	4/22/05	4/22/05
86-WOPT-607	AX18572	WATER	4/22/05	4/22/05
86-WOPT-608	AX18573	WATER	4/22/05	4/22/05
86-WOPT-609	AX18574	WATER	4/22/05	4/22/05
86-WOPT-1128	AX18575	SOIL	4/22/05	4/22/05
86-WOPT-1129	AX18576	SOIL	4/22/05	4/22/05
86-WOPT-1130	AX18577	SOIL	4/22/05	4/22/05
86-WOPT-1131	AX18578	SOIL	4/22/05	4/22/05
86-WOPT-1132	AX18579	SOIL	4/22/05	4/22/05
86-WOPT-1133	AX18580	SOIL	4/22/05	4/22/05
86-WOPT-1134	AX18581	SOIL	4/22/05	4/22/05
86-WOPT-1135	AX18582	WATER	4/22/05	4/22/05
86-WOPT-610	AX18583	SOIL	4/22/05	4/22/05
86-WOPT-611	AX18584	SOIL	4/22/05	4/22/05
86-WOPT-612	AX18585	SOIL	4/22/05	4/22/05

86-WOPT-613	AX18586	SOIL	4/22/05	4/22/05
86-WOPT-614	AX18587	SOIL	4/22/05	4/22/05
86-WOPT-615	AX18588	SOIL	4/22/05	4/22/05

# **EPA Method 8260B and CLP Volatiles Volatile Organic Analysis**

## **Sample Preparation:**

The samples were purged according to EPA method 5030B, 5035, and CLP. All holding times were met.

## **Sample Analysis Information:**

The samples were analyzed according to the method using a Hewlett Packard Gas Chromatograph with a mass spectrometer detector. The sample pH were taken after analysis. Sample 86-WOPT-1120 had a pH of 4 and sample 86-WOPT-606 had a pH of 4.

## **Quality Control/Assurance**

### **Calibrations:**

Initial and continuing calibrations were performed according to the method. For the continuing calibration verification performed on Neo file ID: 0422N02W.D, the following compounds increased in response: Bromomethane had a 26%D, Chloroethane had a 30%D, Acetone had a 43%D, Carbon tetrachloride had a 27%D, Dibromochloromethane had a 24%D, Bromoform had a 34%D, m&p Xylene had a 28%D, o-Xylenes had a 26%D, Styrene had a 32%D, Chlorobenzene had a 28%D, and Ethyl benzene had a 31%D. These target analytes were not detected in the associated samples. For the continuing calibration verification performed on Neo file ID: 0422N22.D, Chloroethane had a 39%D. For the continuing calibration verification performed on Chico file ID: 0422C13.D, Acetone had a 26%D. For the continuing calibration verification performed on Sweetpea file ID: 0425S11.D, Acetone had a 25%D. All other calibration criteria were met.

### **Blanks:**

No target analyte was detected above the reporting limits in the method blanks.

### **Spikes:**

Laboratory Control Spikes (LCS) were used for quality assurance. A second-source standard was used for the LCS. All spike and second-source criteria were met. An duplicate LCS could not be reported for the 050422A CLP batch analyzed on Neo 4/22/05 due to an autosampler mis-injection of the internal standards and the surrogates. For the 050422A LCS, 1,1-Dichloroethene recovered above the 145% upper control limit at 147%, Benzene above the 125% upper control limit at 144%, Chlorobenzene above the 125% upper control limit at 139%, Toluene above the 125% upper control limit at 139%, and Trichloroethene above the 125% upper control limit at 145%. The majority of the associated samples were re-analyzed at dilutions. The results compared well. For the LCS Batch ID: 050426AC, Chlorobenzene recovered above the 135% upper control limit at 151%. All other recoveries were within acceptable limits.

Sample 86-WOPT-1123 was designated by the client for MS/MSD analysis. For the MS MSD on sample 86-WOPT-1123, Trichloroethene recovered below the 71% lower control limit at 10.0% and -200%.

### **Surrogates**

All surrogate recoveries were within control limits.

### **Tuning:**

The instrument was tuned using BFB. All method criteria were met.

### **Internal Standards**

The internal standard area counts were compared to the mid-point of the initial calibration according to method 8260. Samples 86-WOPT-610 and 86-WOPT-611 recovered the internal standard 1,4-Dichlorobenzene-d4 below the lower control limit. Both samples were re-analyzed with similar results. Only the first data set is reported. The internal standard area counts were compared to the continuing calibration according to CLP. All method criteria were met.

### **Summary:**

No additional problem was encountered.

# **EPA Methods 6010B**

## **Metals**

### **Digestion Information:**

The water was digested according to EPA methods 3010A. No exceptions were encountered. All holding times were met.

### **Analysis Information:**

#### **Samples:**

The sample was analyzed for dissolved metals according to EPA method 6010B using a Perkin Elmer Optima 4300DV.

#### **Calibrations:**

Calibrations were performed according to the methods for the initial calibration and the initial calibration verification. The initial calibration verification is prepared from a second source standard.

#### **Blanks:**

Calcium and Sodium were detected below the reporting limit but above the MDL in the 050428A method blank at 0.069mg/L and 0.25mg/L respectively. Potassium was detected below the reporting limit but above the MDL in the 050509A method blank at 0.12mg/L. No other target metal was detected above the reporting limits in the method blank.

#### **Spikes:**

Laboratory Control Spikes (LCS/LCSD) were used for quality assurance. LCS recoveries were within acceptance limits.

Sample 86-WOPT-1123 was designated by the client for MS/MSD analysis. For the MS/MSD, Calcium recovered above the 120% control limits at 472% and 664%, Iron recovered below the 80% lower control limit at -820% and -310%, Magnesium recovered outside of the 80%-120% control limit at 72.0% and 144%, Potassium recovered above the 120% upper control limit at 124% and 160%, and Sodium recovered above the 120% upper control limit at 125% in the MSD. All other recoveries met acceptance criteria.

### **Summary:**

No analytical exception is noted. All data are acceptable.

# **EPA Methods 300.0, 310.1 and 9060A**

## **Anions, Carbonates & Bi-carbonates and Total Organic Carbon**

### **Sample Preparation Information:**

A Dionex DX500 ion chromatograph was used for the EPA 300.0 analysis. The TOC was analyzed using a Shimadzu TOC-5050A instrument. The samples were screened down to the MDL.

### **Analysis Information:**

#### **Samples:**

The sample was analyzed according to the methods. A Dionex DX500 ion chromatograph was used for the EPA 300.0 analysis. Due to an analyst oversight, the analysis of Nitrate and Nitrite on sample 86-WOPT-608 was analyzed on the 13<sup>th</sup> day from sample date.

#### **Calibrations:**

Calibrations were performed according to the methods for the initial calibration and the initial calibration verification. The initial calibration verification is prepared from a second source standard.

#### **Blanks:**

No target analyte was detected above the reporting limits in the method blanks.

#### **Spikes:**

Laboratory Control Spikes (LCS/LCSD) and Sample Duplicates were used for quality assurance. All recoveries met acceptance criteria.

Sample 86-WOPT-1123 was designated by the client for MS/MSD analysis. For the MS/MSD, Sulfate recovered below the 80% lower control limit at 73.0% and 73.0%. All other recoveries met acceptance criteria. The laboratory also designated sample 86-WOPT-1127 as an MS/MSD for the EPA 310.1 analysis. All recoveries met acceptance criteria.

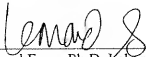
### **Summary:**

No analytical exception is noted.



## CERTIFICATION

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the hard copy has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

 5/23/05  
\_\_\_\_\_  
Leonard Fong, Ph.D. Laboratory Director / Date

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swilt Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1119

Sample Collection Date: 4/22/05

ARF: 47253

APPL ID: AX13558

QCQ: \$C42VT-050422AN-86046

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/22/05	4/22/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/22/05	4/22/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	0.5	0.21	ug/L	4/22/05	4/22/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/22/05	4/22/05
CLP VOL	1,1-Dichloroethane	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	1,1-Dichloroethene	Not detected	0.5	0.30	ug/L	4/22/05	4/22/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/22/05	4/22/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/22/05	4/22/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/22/05	4/22/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/22/05	4/22/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/22/05	4/22/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/22/05	4/22/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/22/05	4/22/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/22/05	4/22/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/22/05	4/22/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/22/05	4/22/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/22/05	4/22/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/22/05	4/22/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/22/05	4/22/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/22/05	4/22/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	4/22/05	4/22/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/22/05	4/22/05
CLP VOL	cis-1,2-Dichloroethene	Not detected	0.5	0.16	ug/L	4/22/05	4/22/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/22/05	4/22/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/22/05	4/22/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/22/05	4/22/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/22/05	4/22/05

Run #: 0422N06

Instrument: Neo

Sequence: N050421

Dilution Factor: 1

Initials: LF

Printed: 5/19/05 6:23:25 PM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 56-WOPT-1119

Sample Collection Date: 4/22/05

APPL inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47233

APPL ID: AX18558

QCG: SC42VT-050422AN-86046

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	Not detected	0.5	0.15	ug/L	4/22/05	4/22/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/22/05	4/22/05
CLP VOL	trans-1,2-Dichloroethene	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/22/05	4/22/05
CLP VOL	Trichloroethene	Not detected	0.5	0.16	ug/L	4/22/05	4/22/05
CLP VOL	Vinyl Chloride	Not detected	0.5	0.23	ug/L	4/22/05	4/22/05
CLP VOL	Surrogate Recovery (BFB)	98.8	75-125		%	4/22/05	4/22/05
CLP VOL	Surrogate Recovery (DCA)	101	62-139		%	4/22/05	4/22/05
CLP VOL	Surrogate Recovery (TOL)	108	75-125		%	4/22/05	4/22/05

Run #: 0422N06  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 1  
Initials: LF

Printed 5/19/05 6:23:25 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

Attn: Lisa Blenkowski

Project: 1930.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1120

Sample Collection Date: 4/22/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47233

APPL ID: AX18559

QCQ: SC42VT-050422AN-86046

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/22/05	4/22/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/22/05	4/22/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	0.5	0.21	ug/L	4/22/05	4/22/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/22/05	4/22/05
CLP VOL	1,1-Dichloroethane	4.4	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	1,1-Dichloroethene	4.9	0.5	0.30	ug/L	4/22/05	4/22/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/22/05	4/22/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/22/05	4/22/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/22/05	4/22/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/22/05	4/22/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/22/05	4/22/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/22/05	4/22/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/22/05	4/22/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/22/05	4/22/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/22/05	4/22/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/22/05	4/22/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/22/05	4/22/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/22/05	4/22/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/22/05	4/22/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/22/05	4/22/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	4/22/05	4/22/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/22/05	4/22/05
CLP VOL	cis-1,2-Dichloroethene	190 E	0.5	0.16	ug/L	4/22/05	4/22/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/22/05	4/22/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/22/05	4/22/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/22/05	4/22/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/22/05	4/22/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0422N07  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 1  
Initials: LF

Printed 5/19/05 6:23:25 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech, FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.036D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WCPT-1120

Sample Collection Date: 4/22/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47233

APPL ID: AX18559

QCG: SC42VT-050422AN-86046

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	Not detected	0.5	0.15	ug/L	4/22/05	4/22/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/22/05	4/22/05
CLP VOL	trans-1,2-Dichloroethene	0.65	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/22/05	4/22/05
CLP VOL	Trichloroethene	53	0.5	0.16	ug/L	4/22/05	4/22/05
CLP VOL	Vinyl Chloride	0.29 J	0.5	0.23	ug/L	4/22/05	4/22/05
CLP VOL	Surrogate Recovery (BFB)	101	75-125		%	4/22/05	4/22/05
CLP VOL	Surrogate Recovery (DCA)	107	62-139		%	4/22/05	4/22/05
CLP VOL	Surrogate Recovery (TOL)	105	75-125		%	4/22/05	4/22/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0422N07  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 1  
Initials: LF

Printed: 5/19/05 6:23:25 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990.066D WATS Bldg 88 Moffett Airfield  
Sample ID: 56-WOPT-1120  
Sample Collection Date: 4/22/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47233  
APPL ID: AX18559  
QCG: \$C42VD-050506AN-87183

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	230	2.5	0.80	ug/L	5/6/05	5/6/05
CLP VOL	Surrogate Recovery (BFB)	107	75-125		%	5/6/05	5/6/05
CLP VOL	Surrogate Recovery (DCA)	112	62-139		%	5/6/05	5/6/05
CLP VOL	Surrogate Recovery (TOL)	113	75-125		%	5/6/05	5/6/05

Run #: 0506N13  
Instrument: Neo  
Sequence: N050503  
Dilution Factor: 5  
Initials: LF

Printed: 5/23/05 9:07:30 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Dsers Avenue, Ste 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 86 Moffett Airfield

Sample ID: 86-WOPT-1121

Sample Collection Date: 4/22/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47233

APPL ID: AX18560

QC# SC42VT-050422AN-86046

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	2.4	0.5	0.14	ug/L	4/22/05	4/22/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/22/05	4/22/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	2.5	0.5	0.21	ug/L	4/22/05	4/22/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/22/05	4/22/05
CLP VOL	1,1-Dichloroethane	3.7	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	1,1-Dichloroethene	4.4	0.5	0.30	ug/L	4/22/05	4/22/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/22/05	4/22/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/22/05	4/22/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/22/05	4/22/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/22/05	4/22/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/22/05	4/22/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/22/05	4/22/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/22/05	4/22/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/22/05	4/22/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/22/05	4/22/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/22/05	4/22/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/22/05	4/22/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/22/05	4/22/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/22/05	4/22/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/22/05	4/22/05
CLP VOL	Chloroform	0.24 J	0.5	0.16	ug/L	4/22/05	4/22/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/22/05	4/22/05
CLP VOL	cis-1,2-Dichloroethene	52	0.5	0.16	ug/L	4/22/05	4/22/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/22/05	4/22/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/22/05	4/22/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/22/05	4/22/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/22/05	4/22/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

Run #: 0422N08  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 1  
Initials: LF

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# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47233

Sample ID: 86-WOPT-1121

APPL ID: AX18560

Sample Collection Date: 4/22/05

QCG: SC42VT-050422AN-86046

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	0.28 J	0.5	0.15	ug/L	4/22/05	4/22/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/22/05	4/22/05
CLP VOL	trans-1,2-Dichloroethene	0.88	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/22/05	4/22/05
CLP VOL	Trichloroethene	210 E	0.5	0.16	ug/L	4/22/05	4/22/05
CLP VOL	Vinyl Chloride	0.59	0.5	0.23	ug/L	4/22/05	4/22/05
CLP VOL	Surrogate Recovery (BFB)	101	75-125		%	4/22/05	4/22/05
CLP VOL	Surrogate Recovery (DCA)	113	62-139		%	4/22/05	4/22/05
CLP VOL	Surrogate Recovery (TOL)	103	75-125		%	4/22/05	4/22/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0422N08  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 1  
Initials: LF

Printed 5/19/05 6:23:25 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield  
Sample ID: 86-WOPT-1121  
Sample Collection Date: 4/22/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47233  
APPL ID: AX18560  
QCG: \$C42VD-050506AN-87183

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Trichloroethene	270	2.5	0.80	ug/L	5/6/05	5/6/05
CLP VOL	Surrogate Recovery (BFB)	116	75-125		%	5/6/05	5/6/05
CLP VOL	Surrogate Recovery (DCA)	108	62-139		%	5/6/05	5/6/05
CLP VOL	Surrogate Recovery (TOL)	119	75-125		%	5/6/05	5/6/05

Run #: 0506N14  
Instrument: Neo  
Sequence: N050503  
Dilution Factor: 5  
Initials: LF

Printed: 5/23/05 9:07:30 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

ARF: 47233

Sample ID: 86-WOPT-1122

APPL ID: AX18561

Sample Collection Date: 4/22/05

QCG: SC42VT-050422AN-86046

Methcd	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	2.7	0.5	0.14	ug/L	4/22/05	4/22/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/22/05	4/22/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	2.9	0.5	0.21	ug/L	4/22/05	4/22/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/22/05	4/22/05
CLP VOL	1,1-Dichloroethane	4.0	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	1,1-Dichloroethene	5.1	0.5	0.30	ug/L	4/22/05	4/22/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/22/05	4/22/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/22/05	4/22/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/22/05	4/22/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/22/05	4/22/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/22/05	4/22/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/22/05	4/22/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/22/05	4/22/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/22/05	4/22/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/22/05	4/22/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/22/05	4/22/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/22/05	4/22/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/22/05	4/22/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/22/05	4/22/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/22/05	4/22/05
CLP VOL	Chloroform	0.27 J	0.5	0.16	ug/L	4/22/05	4/22/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/22/05	4/22/05
CLP VOL	cis-1,2-Dichloroethene	58	0.5	0.16	ug/L	4/22/05	4/22/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/22/05	4/22/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/22/05	4/22/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/22/05	4/22/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/22/05	4/22/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0422N09  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 1  
Initials: LF

Printed: 5/19/05 6:23:25 PM  
APPL-F1-SC-MCRS/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

ARF: 47233

Sample ID: 86-WOPT-1122

APPL ID: AX18561

Sample Collection Date: 4/22/05

QCG: \$C42VT-050422AN-86046

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	0.30 J	0.5	0.15	ug/L	4/22/05	4/22/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/22/05	4/22/05
CLP VOL	trans-1,2-Dichloroethene	0.92	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/22/05	4/22/05
CLP VOL	Trichloroethene	230 E	0.5	0.16	ug/L	4/22/05	4/22/05
CLP VOL	Vinyl Chloride	0.63	0.5	0.23	ug/L	4/22/05	4/22/05
CLP VOL	Surrogate Recovery (BFB)	100	75-125		%	4/22/05	4/22/05
CLP VOL	Surrogate Recovery (DCA)	115	62-139		%	4/22/05	4/22/05
CLP VOL	Surrogate Recovery (TOL)	101	75-125		%	4/22/05	4/22/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0422N09  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 1  
Initials: LF

Printed: 5/19/05 6:23:25 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1122

Sample Collection Date: 4/22/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47233

APPL ID: AX18561

QCG: SC42VD-050506AN-87183

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Trichloroethene	270	2.5	0.80	ug/L	5/6/05	5/6/05
CLP VOL	Surrogate Recovery (BFB)	112	75-125		%	5/6/05	5/6/05
CLP VOL	Surrogate Recovery (DCA)	103	62-139		%	5/6/05	5/6/05
CLP VOL	Surrogate Recovery (TOL)	117	75-125		%	5/6/05	5/6/05

Run #: 0506N15  
Instrument: Neo  
Sequence: N050503  
Dilution Factor: 5  
Initials: LF

Printed: 5/23/05 9:07:30 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1123

Sample Collection Date: 4/22/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47233

APPL ID: AX18562

CCG: \$C42VT-050422BN-86047

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	2.1	0.5	0.14	ug/L	4/23/05	4/23/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/23/05	4/23/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	2.3	0.5	0.21	ug/L	4/23/05	4/23/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/23/05	4/23/05
CLP VOL	1,1-Dichloroethane	4.7	0.5	0.19	ug/L	4/23/05	4/23/05
CLP VOL	1,1-Dichloroethene	6.0	0.5	0.30	ug/L	4/23/05	4/23/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/23/05	4/23/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/23/05	4/23/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/23/05	4/23/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/23/05	4/23/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/23/05	4/23/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/23/05	4/23/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/23/05	4/23/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/23/05	4/23/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/23/05	4/23/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/23/05	4/23/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/23/05	4/23/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/23/05	4/23/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/23/05	4/23/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/23/05	4/23/05
CLP VOL	Chloroform	0.17 J	0.5	0.16	ug/L	4/23/05	4/23/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/23/05	4/23/05
CLP VOL	cis-1,2-Dichloroethene	79	0.5	0.16	ug/L	4/23/05	4/23/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/23/05	4/23/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/23/05	4/23/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/23/05	4/23/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/23/05	4/23/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/23/05	4/23/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/23/05	4/23/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/23/05	4/23/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/23/05	4/23/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0422N31  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 1  
Initials: LF

Printed: 5/19/05 6:23:25 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47233

Sample ID: 86-WOPT-1123

APPL ID: AX18562

Sample Collection Date: 4/22/05

QCG: SC42VT-050422BN-89047

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	0.39 J	0.5	0.15	ug/L	4/23/05	4/23/05
CLP VOL	Toluene	0.24 J	0.5	0.17	ug/L	4/23/05	4/23/05
CLP VOL	trans-1,2-Dichloroethene	1.1	0.5	0.19	ug/L	4/23/05	4/23/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/23/05	4/23/05
CLP VOL	Trichloroethene	180 E	0.5	0.16	ug/L	4/23/05	4/23/05
CLP VOL	Vinyl Chloride	0.46 J	0.5	0.23	ug/L	4/23/05	4/23/05
CLP VOL	Surrogate Recovery (BFB)	110	75-125		%	4/23/05	4/23/05
CLP VOL	Surrogate Recovery (DCA)	88.8	62-139		%	4/23/05	4/23/05
CLP VOL	Surrogate Recovery (TOL)	109	75-125		%	4/23/05	4/23/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0422N31  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 1  
Initials: LF

Printed: 5/19/05 6:23:26 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1123

Sample Collection Date: 4/22/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47233

APPL ID: AX18562

QCG: SC42VD-050506AN-87183

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Trichloroethene	180	2.5	0.80	ug/L	5/6/05	5/6/05
CLP VOL	Surrogate Recovery (BFB)	112	75-125		%	5/6/05	5/6/05
CLP VOL	Surrogate Recovery (DCA)	101	62-139		%	5/6/05	5/6/05
CLP VOL	Surrogate Recovery (TOL)	115	75-125		%	5/6/05	5/6/05

Run #: 0506N16  
Instrument: Neo  
Sequence: N050503  
Dilution Factor: 5  
Initials: LF

Printed: 5/23/05 9:07:30 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FWI, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Blenkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

ARF: 47233

Sample ID: 86-WOPT-1124

APPL ID: AX18563

Sample Collection Date: 4/22/05

QCG: SC42VT-050422AN-86046

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	1.4	0.5	0.14	ug/L	4/22/05	4/22/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/22/05	4/22/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	1.9	0.5	0.21	ug/L	4/22/05	4/22/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/22/05	4/22/05
CLP VOL	1,1-Dichloroethane	3.5	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	1,1-Dichloroethene	5.3	0.5	0.30	ug/L	4/22/05	4/22/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/22/05	4/22/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/22/05	4/22/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/22/05	4/22/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/22/05	4/22/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/22/05	4/22/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/22/05	4/22/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/22/05	4/22/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/22/05	4/22/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/22/05	4/22/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/22/05	4/22/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/22/05	4/22/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/22/05	4/22/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/22/05	4/22/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/22/05	4/22/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	4/22/05	4/22/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/22/05	4/22/05
CLP VOL	cis-1,2-Dichloroethene	82	0.5	0.16	ug/L	4/22/05	4/22/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/22/05	4/22/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/22/05	4/22/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/22/05	4/22/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/22/05	4/22/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0422N10  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 1  
Initials: LF

Printed: 5/19/05 6:23:26 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1124

Sample Collection Date: 4/22/05

AFPL inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47233

APPL ID: AX18563

QCG: SC42VT-050422AN-86046

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	0.22 J	0.5	0.15	ug/L	4/22/05	4/22/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/22/05	4/22/05
CLP VOL	trans-1,2-Dichloroethene	1.5	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/22/05	4/22/05
CLP VOL	Trichloroethene	170 E	0.5	0.16	ug/L	4/22/05	4/22/05
CLP VOL	Vinyl Chloride	0.42 J	0.5	0.23	ug/L	4/22/05	4/22/05
CLP VOL	Surrogate Recovery (BFB)	116	75-125		%	4/22/05	4/22/05
CLP VOL	Surrogate Recovery (DCA)	110	62-139		%	4/22/05	4/22/05
CLP VOL	Surrogate Recovery (TOL)	119	75-125		%	4/22/05	4/22/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range

Run #: 0422N10  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 1  
Initials: LF

Printed 5/19/05 6:23:26 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47233

Sample ID: 86-WOPT-1125

APPL ID: AX18564

Sample Collection Date: 4/22/05

QCG: SC42VT-050422AN-86046

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	0.94	0.5	0.14	ug/L	4/22/05	4/22/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/22/05	4/22/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	3.1	0.5	0.21	ug/L	4/22/05	4/22/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/22/05	4/22/05
CLP VOL	1,1-Dichloroethane	5.4	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	1,1-Dichloroethene	8.6	0.5	0.30	ug/L	4/22/05	4/22/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/22/05	4/22/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/22/05	4/22/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/22/05	4/22/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/22/05	4/22/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/22/05	4/22/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/22/05	4/22/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/22/05	4/22/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/22/05	4/22/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/22/05	4/22/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/22/05	4/22/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/22/05	4/22/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/22/05	4/22/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/22/05	4/22/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/22/05	4/22/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	4/22/05	4/22/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/22/05	4/22/05
CLP VOL	cis-1,2-Dichloroethene	130 E	0.5	0.16	ug/L	4/22/05	4/22/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/22/05	4/22/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/22/05	4/22/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/22/05	4/22/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/22/05	4/22/05

E = The reported value exceeds linear range.

Run #: 0422N11  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 1  
Initials: LF

Printed 5/19/05 6:23:26 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1125

Sample Collection Date: 4/22/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47233

APPL ID: AX18564

QCG: SC42VT-050422AN-86046

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	1.5	0.5	0.15	ug/L	4/22/05	4/22/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/22/05	4/22/05
CLP VOL	trans-1,2-Dichloroethene	1.5	0.5	0.19	ug/L	4/22/05	4/22/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/22/05	4/22/05
CLP VOL	Trichloroethene	200 E	0.5	0.16	ug/L	4/22/05	4/22/05
CLP VOL	Vinyl Chloride	0.56	0.5	0.23	ug/L	4/22/05	4/22/05
CLP VOL	Surrogate Recovery (BFB)	107	75-125		%	4/22/05	4/22/05
CLP VOL	Surrogate Recovery (DCA)	117	62-139		%	4/22/05	4/22/05
CLP VOL	Surrogate Recovery (TOL)	110	75-125		%	4/22/05	4/22/05

E = The reported value exceeds linear range.

Run #: 0422N11  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 1  
Initials: LF

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990 08SD WATS Bldg 88 Moffett Airfield

ARF: 47233

Sample ID: 86-WOPT-1125

APPL ID: AX18564

Sample Collection Date: 4/22/05

QCG: SC42VD-050506AN-87183

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	130	2.5	0.80	ug/L	5/6/05	5/6/05
CLP VOL	Trichloroethene	260	2.5	0.80	ug/L	5/6/05	5/6/05
CLP VOL	Surrogate Recovery (BFB)	108	75-125		%	5/6/05	5/6/05
CLP VOL	Surrogate Recovery (DCA)	92.0	62-139		%	5/6/05	5/6/05
CLP VOL	Surrogate Recovery (TOL)	112	75-125		%	5/6/05	5/6/05

Run #: 0506N18  
Instrument: Neo  
Sequence: N050503  
Dilution Factor: 5  
Initials: LF

Printed: 5/23/05 9:07:30 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 203  
Santa Ana, CA 92705

APPL Inc  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1950.086D WATS Bldg 88 Moffett Airfield

ARF: 47233

Sample ID: 86-WOPT-1126

APPL ID: AX18565

Sample Collection Date: 4/22/05

QCG: SC42VT-050422AN-86046

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/23/05	4/23/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/23/05	4/23/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	0.5	0.21	ug/L	4/23/05	4/23/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/23/05	4/23/05
CLP VOL	1,1-Dichloroethane	Not detected	0.5	0.19	ug/L	4/23/05	4/23/05
CLP VOL	1,1-Dichloroethene	Not detected	0.5	0.30	ug/L	4/23/05	4/23/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/23/05	4/23/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/23/05	4/23/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/23/05	4/23/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/23/05	4/23/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/23/05	4/23/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/23/05	4/23/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/23/05	4/23/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/23/05	4/23/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/23/05	4/23/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/23/05	4/23/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/23/05	4/23/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/23/05	4/23/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/23/05	4/23/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/23/05	4/23/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	4/23/05	4/23/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/23/05	4/23/05
CLP VOL	cis-1,2-Dichloroethene	0.74	0.5	0.16	ug/L	4/23/05	4/23/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/23/05	4/23/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/23/05	4/23/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/23/05	4/23/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/23/05	4/23/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/23/05	4/23/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/23/05	4/23/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/23/05	4/23/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/23/05	4/23/05

Run #: 0422N12  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 1  
Initials: LF

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 66-WOPT-1126

Sample Collection Date: 4/22/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47233

APPL ID: AX18565

QCG: SC42VT-050422AN-86046

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	3.1	0.5	0.15	ug/L	4/23/05	4/23/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/23/05	4/23/05
CLP VOL	trans-1,2-Dichloroethene	Not detected	0.5	0.19	ug/L	4/23/05	4/23/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/23/05	4/23/05
CLP VOL	Trichloroethene	0.77	0.5	0.16	ug/L	4/23/05	4/23/05
CLP VOL	Vinyl Chloride	Not detected	0.5	0.23	ug/L	4/23/05	4/23/05
CLP VOL	Surrogate Recovery (BFB)	104	75-125		%	4/23/05	4/23/05
CLP VOL	Surrogate Recovery (DCA)	116	62-139		%	4/23/05	4/23/05
CLP VOL	Surrogate Recovery (TOL)	106	75-125		%	4/23/05	4/23/05

Run #: 0422N12  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 1  
Initials: LF

Printed: 5/19/05 6:23:26 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47233

Sample ID: 86-WOPT-1127

APPL ID: AX18566

Sample Collection Date: 4/22/05

CCG: SC42VT-050422AN-86046

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/23/05	4/23/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/23/05	4/23/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	0.5	0.21	ug/L	4/23/05	4/23/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/23/05	4/23/05
CLP VOL	1,1-Dichloroethane	Not detected	0.5	0.19	ug/L	4/23/05	4/23/05
CLP VOL	1,1-Dichloroethene	Not detected	0.5	0.30	ug/L	4/23/05	4/23/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/23/05	4/23/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/23/05	4/23/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/23/05	4/23/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/23/05	4/23/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/23/05	4/23/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/23/05	4/23/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/23/05	4/23/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/23/05	4/23/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/23/05	4/23/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/23/05	4/23/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/23/05	4/23/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/23/05	4/23/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/23/05	4/23/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/23/05	4/23/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	4/23/05	4/23/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/23/05	4/23/05
CLP VOL	cis-1,2-Dichloroethene	Not detected	0.5	0.16	ug/L	4/23/05	4/23/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/23/05	4/23/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/23/05	4/23/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/23/05	4/23/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/23/05	4/23/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/23/05	4/23/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/23/05	4/23/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/23/05	4/23/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/23/05	4/23/05

Run #: 0422N13

Instrument: Neo

Sequence: N050421

Dilution Factor: 1

Initials: LF

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92703

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1127

Sample Collection Date: 4/22/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47233

APPL ID: AX18566

QCG: \$C42VT-050422AN-86046

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	Not detected	0.5	0.15	ug/L	4/23/05	4/23/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/23/05	4/23/05
CLP VOL	trans-1,2-Dichloroethene	Not detected	0.5	0.19	ug/L	4/23/05	4/23/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/23/05	4/23/05
CLP VOL	Trichloroethene	Not detected	0.5	0.16	ug/L	4/23/05	4/23/05
CLP VOL	Vinyl Chloride	Not detected	0.5	0.23	ug/L	4/23/05	4/23/05
CLP VOL	Surrogate Recovery (BFB)	102	75-125		%	4/23/05	4/23/05
CLP VOL	Surrogate Recovery (DCA)	106	62-139		%	4/23/05	4/23/05
CLP VOL	Surrogate Recovery (TOL)	108	75-125		%	4/23/05	4/23/05

Run #: 0422N13  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 1  
Initials: LF

Printed: 5/19/05 6:23:26 PM  
APPL-F1 SC-MCRes/MCPQL-REG MDLs



# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

AFPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47233

Sample ID: 86-WOPT-602

APPL ID: AX18567

Sample Collection Date: 4/22/05

CCG: SC42VT-050422AN-86046

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/23/05	4/23/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/23/05	4/23/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	0.5	0.21	ug/L	4/23/05	4/23/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/23/05	4/23/05
CLP VOL	1,1-Dichloroethane	Not detected	0.5	0.19	ug/L	4/23/05	4/23/05
CLP VOL	1,1-Dichloroethene	Not detected	0.5	0.30	ug/L	4/23/05	4/23/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/23/05	4/23/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/23/05	4/23/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/23/05	4/23/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/23/05	4/23/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/23/05	4/23/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/23/05	4/23/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/23/05	4/23/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/23/05	4/23/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/23/05	4/23/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/23/05	4/23/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/23/05	4/23/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/23/05	4/23/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/23/05	4/23/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/23/05	4/23/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	4/23/05	4/23/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/23/05	4/23/05
CLP VOL	cis-1,2-Dichloroethene	Not detected	0.5	0.16	ug/L	4/23/05	4/23/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/23/05	4/23/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/23/05	4/23/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/23/05	4/23/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/23/05	4/23/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/23/05	4/23/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/23/05	4/23/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/23/05	4/23/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/23/05	4/23/05

Run #: 0422N14  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 1  
Initials: LF

Printed: 5/19/05 6:23:26 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

APPL inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

ARF: 47233

Sample ID: 86-WOPT-602

APPL ID: AX18567

Sample Collection Date: 4/22/05

QCG: SC42VT-050422AN-86946

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	Not detected	0.5	0.15	ug/L	4/23/05	4/23/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/23/05	4/23/05
CLP VOL	trans-1,2-Dichloroethene	Not detected	0.5	0.19	ug/L	4/23/05	4/23/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/23/05	4/23/05
CLP VOL	Trichloroethene	Not detected	0.5	0.16	ug/L	4/23/05	4/23/05
CLP VOL	Vinyl Chloride	Not detected	0.5	0.23	ug/L	4/23/05	4/23/05
CLP VOL	Surrogate Recovery (BFB)	97.6	75-125		%	4/23/05	4/23/05
CLP VOL	Surrogate Recovery (DCA)	93.7	62-139		%	4/23/05	4/23/05
CLP VOL	Surrogate Recovery (TOL)	109	75-125		%	4/23/05	4/23/05

Run #: 0422N14  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 1  
Initials: LF

Printed: 5/19/05 6:23:26 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.096D WATS Bldg 36 Moffett Airfield

ARF: 47233

Sample ID: 86-WOPT-603

APPL ID: AX18568

Sample Collection Date: 4/22/05

CCG: SC42VT-050422AN-86046

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	0.97	0.5	0.14	ug/L	4/23/05	4/23/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/23/05	4/23/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	0.82	0.5	0.21	ug/L	4/23/05	4/23/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/23/05	4/23/05
CLP VOL	1,1-Dichloroethane	8.3	0.5	0.19	ug/L	4/23/05	4/23/05
CLP VOL	1,1-Dichloroethene	5.5	0.5	0.30	ug/L	4/23/05	4/23/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/23/05	4/23/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/23/05	4/23/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/23/05	4/23/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/23/05	4/23/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/23/05	4/23/05
CLP VOL	Acetone	1.3 J	5	0.95	ug/L	4/23/05	4/23/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/23/05	4/23/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/23/05	4/23/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/23/05	4/23/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/23/05	4/23/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/23/05	4/23/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/23/05	4/23/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/23/05	4/23/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/23/05	4/23/05
CLP VOL	Chloroform	0.36 J	0.5	0.16	ug/L	4/23/05	4/23/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/23/05	4/23/05
CLP VOL	cis-1,2-Dichloroethene	440 E	0.5	0.16	ug/L	4/23/05	4/23/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/23/05	4/23/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/23/05	4/23/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/23/05	4/23/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/23/05	4/23/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/23/05	4/23/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/23/05	4/23/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/23/05	4/23/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/23/05	4/23/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0422N15  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 1  
Initials: LF

Printed: 5/19/05 6:23:26 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-603

Sample Collection Date: 4/22/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47233

APPL ID: AX18568

QCG: SC42VT-050422AN-86046

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	830 E	0.5	0.15	ug/L	4/23/05	4/23/05
CLP VOL	Toluene	0.20 J	0.5	0.17	ug/L	4/23/05	4/23/05
CLP VOL	trans-1,2-Dichloroethene	31	0.5	0.19	ug/L	4/23/05	4/23/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/23/05	4/23/05
CLP VOL	Trichloroethene	450 E	0.5	0.16	ug/L	4/23/05	4/23/05
CLP VOL	Vinyl Chloride	0.91	0.5	0.23	ug/L	4/23/05	4/23/05
CLP VOL	Surrogate Recovery (BFB)	99.7	75-125		%	4/23/05	4/23/05
CLP VOL	Surrogate Recovery (DCA)	89.3	62-139		%	4/23/05	4/23/05
CLP VOL	Surrogate Recovery (TOL)	111	75-125		%	4/23/05	4/23/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0422N15  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 1  
Initials: LF

Printed: 5/19/05 6:23:26 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990.066D WATS Bldg 88 Moffett Airfield

**Sample ID: E6-WOPT-603**

Sample Collection Date: 4/22/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47233

**APPL ID: AX18568**

QCG: SC42VD-050506AC-87178

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	260	25	8.00	ug/L	5/6/05	5/6/05
CLP VOL	Tetrachloroethene	400	25	7.50	ug/L	5/6/05	5/6/05
CLP VOL	Trichloroethene	260	25	8.00	ug/L	5/6/05	5/6/05
CLP VOL	Surrogate Recovery (BFB)	96.2	75-125		%	5/6/05	5/6/05
CLP VOL	Surrogate Recovery (DCA)	105	62-139		%	5/6/05	5/6/05
CLP VOL	Surrogate Recovery (TOL)	96.6	75-125		%	5/6/05	5/6/05

Run #: 0506C09  
Instrument: Chico  
Sequence: C050505  
Dilution Factor: 50  
Initials: LF

Printed: 5/21/05 9:01:11 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47233

Sample ID: 86-WOPT-604

APPL ID: AX18569

Sample Collection Date: 4/22/05

QCG: \$C42VT-050422AN-86046

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/23/05	4/23/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/23/05	4/23/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	0.5	0.21	ug/L	4/23/05	4/23/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/23/05	4/23/05
CLP VOL	1,1-Dichloroethane	6.9	0.5	0.19	ug/L	4/23/05	4/23/05
CLP VOL	1,1-Dichloroethene	0.66	0.5	0.30	ug/L	4/23/05	4/23/05
CLP VOL	1,2-Dichloroethane	5.3	0.5	0.14	ug/L	4/23/05	4/23/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/23/05	4/23/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/23/05	4/23/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/23/05	4/23/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/23/05	4/23/05
CLP VOL	Acetone	3.0 J	5	0.95	ug/L	4/23/05	4/23/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/23/05	4/23/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/23/05	4/23/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/23/05	4/23/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/23/05	4/23/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/23/05	4/23/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/23/05	4/23/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/23/05	4/23/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/23/05	4/23/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	4/23/05	4/23/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/23/05	4/23/05
CLP VOL	cis-1,2-Dichloroethene	290 E	0.5	0.16	ug/L	4/23/05	4/23/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/23/05	4/23/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/23/05	4/23/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/23/05	4/23/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/23/05	4/23/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/23/05	4/23/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/23/05	4/23/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/23/05	4/23/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/23/05	4/23/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0422N16  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 1  
Initials: LF

Printed: 5/19/05 6:23:26 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-604

Sample Collection Date: 4/22/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47233

APPL ID: AX18569

QCG: \$C42VT-050422AN-86046

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	3.7	0.5	0.15	ug/L	4/23/05	4/23/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/23/05	4/23/05
CLP VOL	trans-1,2-Dichloroethene	23	0.5	0.19	ug/L	4/23/05	4/23/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/23/05	4/23/05
CLP VOL	Trichloroethene	22	0.5	0.16	ug/L	4/23/05	4/23/05
CLP VOL	Vinyl Chloride	Not detected	0.5	0.23	ug/L	4/23/05	4/23/05
CLP VOL	Surrogate Recovery (BFB)	96.5	75-125		%	4/23/05	4/23/05
CLP VOL	Surrogate Recovery (DCA)	95.9	62-139		%	4/23/05	4/23/05
CLP VOL	Surrogate Recovery (TOL)	114	75-125		%	4/23/05	4/23/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0422N16  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 1  
Initials: LF

Printed: 5/19/05 6:23:26 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech, FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

APFL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47233

Sample ID: 86-WOPT-604

APPL ID: AX18569

Sample Collection Date: 4/22/05

QCG: SC42VD-050506AC-87178

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	330	25	8.00	ug/L	5/6/05	5/6/05
CLP VOL	Surrogate Recovery (BFB)	98.9	75-125		%	5/6/05	5/6/05
CLP VOL	Surrogate Recovery (DCA)	101	62-139		%	5/6/05	5/6/05
CLP VOL	Surrogate Recovery (TOL)	102	75-125		%	5/6/05	5/6/05

Run #: 0506C10  
Instrument: Chico  
Sequence: C050505  
Dilution Factor: 50  
Initials: LF

Printed: 5/21/05 9:01:11 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990 C86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-605

Sample Collection Date: 4/22/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47233

APPL ID: AX18570

CCG: SC42VT-050422AN-86046

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/23/05	4/23/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/23/05	4/23/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	0.5	0.21	ug/L	4/23/05	4/23/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/23/05	4/23/05
CLP VOL	1,1-Dichloroethane	16	0.5	0.19	ug/L	4/23/05	4/23/05
CLP VOL	1,1-Dichloroethane	20	0.5	0.30	ug/L	4/23/05	4/23/05
CLP VOL	1,2-Dichloroethane	1.2	0.5	0.14	ug/L	4/23/05	4/23/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/23/05	4/23/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/23/05	4/23/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/23/05	4/23/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/23/05	4/23/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/23/05	4/23/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/23/05	4/23/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/23/05	4/23/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/23/05	4/23/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/23/05	4/23/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/23/05	4/23/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/23/05	4/23/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/23/05	4/23/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/23/05	4/23/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	4/23/05	4/23/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/23/05	4/23/05
CLP VOL	cis-1,2-Dichloroethene	420 E	0.5	0.16	ug/L	4/23/05	4/23/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/23/05	4/23/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/23/05	4/23/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/23/05	4/23/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/23/05	4/23/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/23/05	4/23/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/23/05	4/23/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/23/05	4/23/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/23/05	4/23/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0422N17  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 1  
Initials: LF

Printed: 5/19/05 6:23:26 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-605**

Sample Collection Date: 4/22/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47233

**APPL ID: AX18570**

QCG: SC42VT-050422AN-86046

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	0.44 J	0.5	0.15	ug/L	4/23/05	4/23/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/23/05	4/23/05
CLP VOL	trans-1,2-Dichloroethene	3.4	0.5	0.19	ug/L	4/23/05	4/23/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/23/05	4/23/05
CLP VOL	Trichloroethene	14	0.5	0.16	ug/L	4/23/05	4/23/05
CLP VOL	Vinyl Chloride	1.1	0.5	0.23	ug/L	4/23/05	4/23/05
CLP VOL	Surrogate Recovery (BFB)	96.5	75-125		%	4/23/05	4/23/05
CLP VOL	Surrogate Recovery (DCA)	89.4	62-139		%	4/23/05	4/23/05
CLP VOL	Surrogate Recovery (TOL)	113	75-125		%	4/23/05	4/23/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0422N17  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 1  
Initials: LF

Printed: 5/19/05 6:23:26 PM  
APPL-F1-SC-MCRcs/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.08SD WATS Bldg E8 Moffett Airfield

Sample ID: 86-WOPT-605

Sample Collection Date: 4/22/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47233

APPL ID: AX18570

OCG: SC42VD-050506AC-67178

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	500	50	16.00	ug/L	5/6/05	5/6/05
CLP VOL	Surrogate Recovery (BFB)	92.4	75-125		%	5/6/05	5/6/05
CLP VOL	Surrogate Recovery (DCA)	99.7	62-139		%	5/6/05	5/6/05
CLP VOL	Surrogate Recovery (TOL)	92.8	75-125		%	5/6/05	5/6/05

Run #: 0506C11  
Instrument: Chico  
Sequence: C050505  
Dilution Factor: 100  
Initials: LF

Printed: 5/21/05 9:01 11 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E Deere Avenue, Ste 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-606

Sample Collection Date: 4/22/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47233

APPL ID: AX18571

QCQ: SC42VT-050422BN-86047

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/23/05	4/23/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/23/05	4/23/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	0.5	0.21	ug/L	4/23/05	4/23/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/23/05	4/23/05
CLP VOL	1,1-Dichloroethane	0.75	0.5	0.19	ug/L	4/23/05	4/23/05
CLP VOL	1,1-Dichloroethene	0.58	0.5	0.30	ug/L	4/23/05	4/23/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/23/05	4/23/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/23/05	4/23/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/23/05	4/23/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/23/05	4/23/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/23/05	4/23/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/23/05	4/23/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/23/05	4/23/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/23/05	4/23/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/23/05	4/23/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/23/05	4/23/05
CLP VOL	Carbon Disulfide	0.21 J	0.5	0.2	ug/L	4/23/05	4/23/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/23/05	4/23/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/23/05	4/23/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/23/05	4/23/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	4/23/05	4/23/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/23/05	4/23/05
CLP VOL	cis-1,2-Dichloroethene	71	0.5	0.16	ug/L	4/23/05	4/23/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/23/05	4/23/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/23/05	4/23/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/23/05	4/23/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/23/05	4/23/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/23/05	4/23/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/23/05	4/23/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/23/05	4/23/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/23/05	4/23/05

J = Estimated value, below quantitation limit.

Run #: 0422N26  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 1  
Initials: LF

Printed: 5/19/05 6:23:26 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-606

Sample Collection Date: 4/22/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47233

APPL ID: AX18571

QCG: SC42VT-050422BN-86047

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	0.67	0.5	0.15	ug/L	4/23/05	4/23/05
CLP VOL	Toluene	0.18 J	0.5	0.17	ug/L	4/23/05	4/23/05
CLP VOL	trans-1,2-Dichloroethene	35	0.5	0.19	ug/L	4/23/05	4/23/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/23/05	4/23/05
CLP VOL	Trichloroethene	6.8	0.5	0.16	ug/L	4/23/05	4/23/05
CLP VOL	Vinyl Chloride	0.36 J	0.5	0.23	ug/L	4/23/05	4/23/05
CLP VOL	Surrogate Recovery (BFB)	109	75-125		%	4/23/05	4/23/05
CLP VOL	Surrogate Recovery (DCA)	91.8	62-139		%	4/23/05	4/23/05
CLP VOL	Surrogate Recovery (TOL)	112	75-125		%	4/23/05	4/23/05

J = Estimated value, below quantitation limit.

Run #: 0422N26  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 1  
Initials: LF

Printed: 5/19/05 6:23:26 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47233

Sample ID: 86-WOPT-607

APPL ID: AX18572

Sample Collection Date: 4/22/05

QCG: SC42VT-050422BN-86047

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	4/23/05	4/23/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/23/05	4/23/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	1.7	0.5	0.21	ug/L	4/23/05	4/23/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/23/05	4/23/05
CLP VOL	1,1-Dichloroethane	9.3	0.5	0.19	ug/L	4/23/05	4/23/05
CLP VOL	1,1-Dichloroethene	4.3	0.5	0.30	ug/L	4/23/05	4/23/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/23/05	4/23/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/23/05	4/23/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/23/05	4/23/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/23/05	4/23/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/23/05	4/23/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/23/05	4/23/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/23/05	4/23/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/23/05	4/23/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/23/05	4/23/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/23/05	4/23/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/23/05	4/23/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/23/05	4/23/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/23/05	4/23/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/23/05	4/23/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	4/23/05	4/23/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/23/05	4/23/05
CLP VOL	cis-1,2-Dichloroethene	56	0.5	0.16	ug/L	4/23/05	4/23/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/23/05	4/23/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/23/05	4/23/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/23/05	4/23/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/23/05	4/23/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/23/05	4/23/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/23/05	4/23/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/23/05	4/23/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/23/05	4/23/05

J = Estimated value, below quantitation limit.

Run #: 0422N27  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 1  
Initials: LF

Printed: 5/19/05 6:23:26 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-607

Sample Collection Date: 4/22/05

ARF: 47233

APPL ID: AX18572

QCG: SC42VT-050422BN-86047

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	9.5	0.5	0.15	ug/L	4/23/05	4/23/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/23/05	4/23/05
CLP VOL	trans-1,2-Dichloroethene	0.67	0.5	0.19	ug/L	4/23/05	4/23/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/23/05	4/23/05
CLP VOL	Trichloroethene	13	0.5	0.16	ug/L	4/23/05	4/23/05
CLP VOL	Vinyl Chloride	0.27 J	0.5	0.23	ug/L	4/23/05	4/23/05
CLP VOL	Surrogate Recovery (BFB)	108	75-125		%	4/23/05	4/23/05
CLP VOL	Surrogate Recovery (DCA)	100	62-139		%	4/23/05	4/23/05
CLP VOL	Surrogate Recovery (TOL)	108	75-125		%	4/23/05	4/23/05

J = Estimated value, below quantitation limit.

Run #: 0422N27  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 1  
Initials: LF

Printed: 5/23/05 11:41:10 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-608

Sample Collection Date: 4/22/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47233

APPL ID: AX18573

QCG: SC42VT-050422BN-86047

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	0.78	0.5	0.14	ug/L	4/23/05	4/23/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/23/05	4/23/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	70 E	0.5	0.21	ug/L	4/23/05	4/23/05
CLP VOL	1,1,2-Trichloroethane	0.24 J	0.5	0.2	ug/L	4/23/05	4/23/05
CLP VOL	1,1-Dichloroethane	5.3	0.5	0.19	ug/L	4/23/05	4/23/05
CLP VOL	1,1-Dichloroethene	27	0.5	0.30	ug/L	4/23/05	4/23/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/23/05	4/23/05
CLP VOL	1,2-Dichloropropene	Not detected	0.5	0.17	ug/L	4/23/05	4/23/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/23/05	4/23/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/23/05	4/23/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/23/05	4/23/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/23/05	4/23/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/23/05	4/23/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/23/05	4/23/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/23/05	4/23/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/23/05	4/23/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/23/05	4/23/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/23/05	4/23/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/23/05	4/23/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/23/05	4/23/05
CLP VOL	Chloroform	0.27 J	0.5	0.16	ug/L	4/23/05	4/23/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/23/05	4/23/05
CLP VOL	cis-1,2-Dichloroethene	53	0.5	0.16	ug/L	4/23/05	4/23/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/23/05	4/23/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/23/05	4/23/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/23/05	4/23/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/23/05	4/23/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/23/05	4/23/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/23/05	4/23/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/23/05	4/23/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/23/05	4/23/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0422N28  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 1  
Initials: LF

Printed: 5/19/05 6:23:26 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: **86-WOPT-608**

Sample Collection Date: 4/22/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47233

APPL ID: **AX18573**

QCG: SC42VT-050422BN-86047

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	130 E	0.5	0.15	ug/L	4/23/05	4/23/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/23/05	4/23/05
CLP VOL	trans-1,2-Dichloroethene	0.56	0.5	0.19	ug/L	4/23/05	4/23/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/23/05	4/23/05
CLP VOL	Trichloroethene	820 E	0.5	0.16	ug/L	4/23/05	4/23/05
CLP VOL	Vinyl Chloride	Not detected	0.5	0.23	ug/L	4/23/05	4/23/05
CLP VOL	Surrogate Recovery (BFB)	102	75-125		%	4/23/05	4/23/05
CLP VOL	Surrogate Recovery (DCA)	85.0	62-139		%	4/23/05	4/23/05
CLP VOL	Surrogate Recovery (TOL)	102	75-125		%	4/23/05	4/23/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0422N28  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 1  
Initials: LF

Printed 5/19/05 6:23:26 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-608**

Sample Collection Date: 4/22/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47233

**APPL ID: AX18573**

QCG: SC42VD-050506AC-87178

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	52	12.5	5.25	ug/L	5/6/05	5/6/05
CLP VOL	Tetrachloroethene	82	12.5	3.75	ug/L	5/6/05	5/6/05
CLP VOL	Trichloroethene	1400	12.5	4.00	ug/L	5/6/05	5/6/05
CLP VOL	Surrogate Recovery (BFB)	95.6	75-125		%	5/6/05	5/6/05
CLP VOL	Surrogate Recovery (DCA)	112	62-139		%	5/6/05	5/6/05
CLP VOL	Surrogate Recovery (TOL)	97.1	75-125		%	5/6/05	5/6/05

Run #: 0506C12  
Instrument: Chico  
Sequence: C050505  
Dilution Factor: 25  
Initials: LF

Printed: 5/21/05 9:01:11 PM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-609

Sample Collection Date: 4/22/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47233

APPL ID: AX18574

QCG: SC42VT-050422BN-86047

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	0.80	0.5	0.14	ug/L	4/23/05	4/23/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/23/05	4/23/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	70 E	0.5	0.21	ug/L	4/23/05	4/23/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/23/05	4/23/05
CLP VOL	1,1-Dichloroethane	5.1	0.5	0.19	ug/L	4/23/05	4/23/05
CLP VOL	1,1-Dichloroethene	28	0.5	0.30	ug/L	4/23/05	4/23/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/23/05	4/23/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/23/05	4/23/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	4/23/05	4/23/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	4/23/05	4/23/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/23/05	4/23/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	4/23/05	4/23/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	4/23/05	4/23/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/23/05	4/23/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	4/23/05	4/23/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	4/23/05	4/23/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	4/23/05	4/23/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	4/23/05	4/23/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/23/05	4/23/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	4/23/05	4/23/05
CLP VOL	Chloroform	0.27 J	0.5	0.16	ug/L	4/23/05	4/23/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	4/23/05	4/23/05
CLP VOL	cis-1,2-Dichloroethene	52	0.5	0.16	ug/L	4/23/05	4/23/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/23/05	4/23/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/23/05	4/23/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/23/05	4/23/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	4/23/05	4/23/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/23/05	4/23/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	4/23/05	4/23/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	4/23/05	4/23/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	4/23/05	4/23/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

Run #: 0422N29  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 1  
Initials: LF

Printed: 5/19/05 6:23:26 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E Deere Avenue, Ste 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-609

Sample Collection Date: 4/22/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47233

APPL ID: AX18574

QCG: \$C42VT-050422BN-86047

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	130 E	0.5	0.15	ug/L	4/23/05	4/23/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	4/23/05	4/23/05
CLP VOL	trans-1,2-Dichloroethene	0.44 J	0.5	0.19	ug/L	4/23/05	4/23/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/23/05	4/23/05
CLP VOL	Trichloroethene	870 E	0.5	0.16	ug/L	4/23/05	4/23/05
CLP VOL	Vinyl Chloride	Not detected	0.5	0.23	ug/L	4/23/05	4/23/05
CLP VOL	Surrogate Recovery (BFB)	106	75-125		%	4/23/05	4/23/05
CLP VOL	Surrogate Recovery (DCA)	86.6	62-139		%	4/23/05	4/23/05
CLP VOL	Surrogate Recovery (TOL)	106	75-125		%	4/23/05	4/23/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0422N29  
Instrument: Neo  
Sequence: N050421  
Dilution Factor: 1  
Initials: LF

Printed: 5/19/05 6:23:26 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-609

Sample Collection Date: 4/22/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47233

APPL ID: AX18574

QCQ: SC42VD-050506AC-87178

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	48	12.5	5.25	ug/L	5/5/05	5/6/05
CLP VOL	Tetrachloroethene	78	12.5	3.75	ug/L	5/6/05	5/6/05
CLP VOL	Trichloroethene	1200	12.5	4.00	ug/L	5/6/05	5/6/05
CLP VOL	Surrogate Recovery (BFB)	100	75-125		%	5/6/05	5/6/05
CLP VOL	Surrogate Recovery (DCA)	103	62-139		%	5/6/05	5/6/05
CLP VOL	Surrogate Recovery (TOL)	97.2	75-125		%	5/6/05	5/6/05

Run #: 0506C13  
Instrument: Chico  
Sequence: C050505  
Dilution Factor: 25  
Initials: LF

Printed: 5/21/05 9:01:11 PM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 82605

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1128

Sample Collection Date: 4/22/05

ARF: 47233

APPL ID: AX18575

QCG: S86TTS-050422B8C-86050

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 23.3 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	7	1.1	ug/Kg	4/22/05	4/22/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	7	1.6	ug/Kg	4/22/05	4/22/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	7	0.63	ug/Kg	4/22/05	4/22/05
EPA 8260B	1,1-Dichloroethane	1.9 J	7	1.5	ug/Kg	4/22/05	4/22/05
EPA 8260B	1,1-Dichloroethene	4.5 J	7	1.0	ug/Kg	4/22/05	4/22/05
EPA 8260B	1,2-Dichloroethane	Not detected	7	0.94	ug/Kg	4/22/05	4/22/05
EPA 8260B	1,2-Dichloropropane	Not detected	7	0.81	ug/Kg	4/22/05	4/22/05
EPA 8260B	2-Butanone	Not detected	65	0.93	ug/Kg	4/22/05	4/22/05
EPA 8260B	2-Hexanone	Not detected	65	0.21	ug/Kg	4/22/05	4/22/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	65	1.2	ug/Kg	4/22/05	4/22/05
EPA 8260B	Acetone	Not detected	130	3.7	ug/Kg	4/22/05	4/22/05
EPA 8260B	Benzene	Not detected	7	0.82	ug/Kg	4/22/05	4/22/05
EPA 8260B	Bromodichloromethane	Not detected	7	0.90	ug/Kg	4/22/05	4/22/05
EPA 8260B	Bromoform	Not detected	7	1.0	ug/Kg	4/22/05	4/22/05
EPA 8260B	Bromomethane	Not detected	13	2.1	ug/Kg	4/22/05	4/22/05
EPA 8260B	Carbon disulfide	Not detected	7	1.4	ug/Kg	4/22/05	4/22/05
EPA 8260B	Carbon tetrachloride	Not detected	7	1.0	ug/Kg	4/22/05	4/22/05
EPA 8260B	Chlorobenzene	Not detected	7	0.64	ug/Kg	4/22/05	4/22/05
EPA 8260B	Chloroethane	Not detected	7	2.0	ug/Kg	4/22/05	4/22/05
EPA 8260B	Chloroform	Not detected	7	1.9	ug/Kg	4/22/05	4/22/05
EPA 8260B	Chloromethane	Not detected	7	2.4	ug/Kg	4/22/05	4/22/05
EPA 8260B	cis-1,2-Dichloroethene	80	7	1.4	ug/Kg	4/22/05	4/22/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	7	0.61	ug/Kg	4/22/05	4/22/05
EPA 8260B	Dibromochloromethane	Not detected	7	1.1	ug/Kg	4/22/05	4/22/05
EPA 8260B	Ethylbenzene	Not detected	7	0.83	ug/Kg	4/22/05	4/22/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	7	1.2	ug/Kg	4/22/05	4/22/05
EPA 8260B	Methylene chloride	Not detected	65	6.0	ug/Kg	4/22/05	4/22/05
EPA 8260B	Styrene	Not detected	7	0.90	ug/Kg	4/22/05	4/22/05
EPA 8260B	Tetrachloroethene	Not detected	7	0.70	ug/Kg	4/22/05	4/22/05
EPA 8260B	Toluene	Not detected	7	0.85	ug/Kg	4/22/05	4/22/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	7	1.8	ug/Kg	4/22/05	4/22/05

J = Estimated value, below quantitation limit.

Run #: 0422C18

Instrument: Chico

Sequence: C050418

Dilution Factor: 1

Initials: LF

Printed: 5/19/05 6:23 26 PM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1128

Sample Collection Date: 4/22/05

APPL inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47233

APPL ID: AX18575

QCG: \$86TTS-050422BC-86050

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	7	0.56	ug/Kg	4/22/05	4/22/05
EPA 8260B	Trichloroethene	280	7	0.93	ug/Kg	4/22/05	4/22/05
EPA 8260B	Vinyl Acetate	Not detected	65	1.3	ug/Kg	4/22/05	4/22/05
EPA 8260B	Vinyl chloride	Not detected	7	2.2	ug/Kg	4/22/05	4/22/05
EPA 8260B	Xylenes	Not detected	20	0.89	ug/Kg	4/22/05	4/22/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	102	52-149		%	4/22/05	4/22/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	94.7	65-135		%	4/22/05	4/22/05
EPA 8260B	Surrogate recovery: Toluene-d8	92.2	65-135		%	4/22/05	4/22/05

J = Estimated value, below quantitation limit.

Run #: 0422C18  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed: 5/19/05 6:23:26 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swiit Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47233

Sample ID: 66-WOPT-1129

APPL ID: AX18576

Sample Collection Date: 4/22/05

CCG: \$86TTS-050426AC-87176

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 10.9 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	0.91	ug/Kg	4/26/05	4/26/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.4	ug/Kg	4/26/05	4/26/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.54	ug/Kg	4/26/05	4/26/05
EPA 8260B	1,1-Dichloroethane	Not detected	6	1.3	ug/Kg	4/26/05	4/26/05
EPA 8260B	1,1-Dichloroethene	Not detected	6	0.89	ug/Kg	4/26/05	4/26/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.81	ug/Kg	4/26/05	4/26/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.70	ug/Kg	4/26/05	4/26/05
EPA 8260B	2-Butanone	Not detected	56	0.80	ug/Kg	4/26/05	4/26/05
EPA 8260B	2-Hexanone	Not detected	56	0.18	ug/Kg	4/26/05	4/26/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	56	1.0	ug/Kg	4/26/05	4/26/05
EPA 8260B	Acetone	Not detected	110	3.1	ug/Kg	4/26/05	4/26/05
EPA 8260B	Benzene	Not detected	6	0.71	ug/Kg	4/26/05	4/26/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.77	ug/Kg	4/26/05	4/26/05
EPA 8260B	Bromoform	Not detected	6	0.90	ug/Kg	4/26/05	4/26/05
EPA 8260B	Bromomethane	Not detected	11	1.8	ug/Kg	4/26/05	4/26/05
EPA 8260B	Carbon disulfide	Not detected	6	1.2	ug/Kg	4/26/05	4/26/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.90	ug/Kg	4/26/05	4/26/05
EPA 8260B	Chlorobenzene	Not detected	6	0.55	ug/Kg	4/26/05	4/26/05
EPA 8260B	Chloroethane	Not detected	6	1.7	ug/Kg	4/26/05	4/26/05
EPA 8260B	Chloroform	Not detected	6	1.6	ug/Kg	4/26/05	4/26/05
EPA 8260B	Chloromethane	Not detected	6	2.0	ug/Kg	4/26/05	4/26/05
EPA 8260B	cis-1,2-Dichloroethene	5.5 J	6	1.2	ug/Kg	4/26/05	4/26/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.53	ug/Kg	4/26/05	4/26/05
EPA 8260B	Dibromochloromethane	Not detected	6	0.95	ug/Kg	4/26/05	4/26/05
EPA 8260B	Ethylbenzene	Not detected	6	0.72	ug/Kg	4/26/05	4/26/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.0	ug/Kg	4/26/05	4/26/05
EPA 8260B	Methylene chloride	Not detected	56	5.1	ug/Kg	4/26/05	4/26/05
EPA 8260B	Styrene	Not detected	6	0.77	ug/Kg	4/26/05	4/26/05
EPA 8260B	Tetrachloroethene	Not detected	6	0.61	ug/Kg	4/26/05	4/26/05
EPA 8260B	Toluene	Not detected	6	0.73	ug/Kg	4/26/05	4/26/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.5	ug/Kg	4/26/05	4/26/05

J = Estimated value, below quantitation limit.

Run #: 0426C16  
Instrument: Chico  
Sequence: C050426  
Dilution Factor: 1  
Initials: LF

Printed: 5/21/05 8:33:20 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1129

Sample Collection Date: 4/22/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47233

APPL ID: AX18576

QCG: S86TTS-050426AC-87176

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	5	0.48	ug/Kg	4/26/05	4/26/05
EPA 8260B	Trichloroethene	36	6	0.80	ug/Kg	4/26/05	4/26/05
EPA 8260B	Vinyl Acetate	Not detected	56	1.1	ug/Kg	4/26/05	4/26/05
EPA 8260B	Vinyl chloride	Not detected	6	1.9	ug/Kg	4/26/05	4/26/05
EPA 8260B	Xylenes	Not detected	17	0.76	ug/Kg	4/26/05	4/26/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	84.6	52-149		%	4/26/05	4/26/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	120	65-135		%	4/26/05	4/26/05
EPA 8260B	Surrogate recovery: Toluene-d8	125	65-135		%	4/26/05	4/26/05

J = Estimated value, below quantitation limit.

Run #: 0426C16  
Instrument: Chico  
Sequence: C050426  
Dilution Factor: 1  
Initials: LF

Printed: 5/21/05 8:33:20 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47233

Sample ID: 86-WOPT-1130

APPL ID: AX18577

Sample Collection Date: 4/22/05

QCG: \$86TTS-050422BC-86050

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 23.1 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	7	1.0	ug/Kg	4/22/05	4/22/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	7	1.6	ug/Kg	4/22/05	4/22/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	7	0.62	ug/Kg	4/22/05	4/22/05
EPA 8260B	1,1-Dichloroethane	Not detected	7	1.5	ug/Kg	4/22/05	4/22/05
EPA 8260B	1,1-Dichloroethene	Not detected	7	1.0	ug/Kg	4/22/05	4/22/05
EPA 8260B	1,2-Dichloroethane	Not detected	7	0.94	ug/Kg	4/22/05	4/22/05
EPA 8260B	1,2-Dichloropropane	Not detected	7	0.81	ug/Kg	4/22/05	4/22/05
EPA 8260B	2-Butanone	Not detected	65	0.92	ug/Kg	4/22/05	4/22/05
EPA 8260B	2-Hexanone	Not detected	65	0.21	ug/Kg	4/22/05	4/22/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	65	1.2	ug/Kg	4/22/05	4/22/05
EPA 8260B	Acetone	Not detected	130	3.6	ug/Kg	4/22/05	4/22/05
EPA 8260B	Benzene	Not detected	7	0.82	ug/Kg	4/22/05	4/22/05
EPA 8260B	Bromodichloromethane	Not detected	7	0.90	ug/Kg	4/22/05	4/22/05
EPA 8260B	Bromoform	Not detected	7	1.0	ug/Kg	4/22/05	4/22/05
EPA 8260B	Bromomethane	Not detected	13	2.1	ug/Kg	4/22/05	4/22/05
EPA 8260B	Carbon disulfide	Not detected	7	1.4	ug/Kg	4/22/05	4/22/05
EPA 8260B	Carbon tetrachloride	Not detected	7	1.0	ug/Kg	4/22/05	4/22/05
EPA 8260B	Chlorobenzene	Not detected	7	0.64	ug/Kg	4/22/05	4/22/05
EPA 8260B	Chloroethane	Not detected	7	2.0	ug/Kg	4/22/05	4/22/05
EPA 8260B	Chloroform	Not detected	7	1.9	ug/Kg	4/22/05	4/22/05
EPA 8260B	Chloromethane	Not detected	7	2.4	ug/Kg	4/22/05	4/22/05
EPA 8260B	cis-1,2-Dichloroethene	12	7	1.4	ug/Kg	4/22/05	4/22/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	7	0.61	ug/Kg	4/22/05	4/22/05
EPA 8260B	Dibromochloromethane	Not detected	7	1.1	ug/Kg	4/22/05	4/22/05
EPA 8260B	Ethylbenzene	Not detected	7	0.83	ug/Kg	4/22/05	4/22/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	7	1.2	ug/Kg	4/22/05	4/22/05
EPA 8260B	Methylene chloride	Not detected	65	6.0	ug/Kg	4/22/05	4/22/05
EPA 8260B	Styrene	Not detected	7	0.90	ug/Kg	4/22/05	4/22/05
EPA 8260B	Tetrachloroethene	Not detected	7	0.70	ug/Kg	4/22/05	4/22/05
EPA 8260B	Toluene	Not detected	7	0.85	ug/Kg	4/22/05	4/22/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	7	1.8	ug/Kg	4/22/05	4/22/05

Run #: 0422C20

Instrument: Chico

Sequence: C050418

Dilution Factor: 1

Initials: LF

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1130

Sample Collection Date: 4/22/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47233

APPL ID: AX18577

QCG: \$86TTS-050422BC-86050

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	7	0.56	ug/Kg	4/22/05	4/22/05
EPA 8260B	Trichloroethene	39	7	0.92	ug/Kg	4/22/05	4/22/05
EPA 8260B	Vinyl Acetate	Not detected	65	1.3	ug/Kg	4/22/05	4/22/05
EPA 8260B	Vinyl chloride	Not detected	7	2.2	ug/Kg	4/22/05	4/22/05
EPA 8260B	Xylenes	Not detected	20	0.88	ug/Kg	4/22/05	4/22/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	108	52-149		%	4/22/05	4/22/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	94.7	65-135		%	4/22/05	4/22/05
EPA 8260B	Surrogate recovery: Toluene-d8	89.0	65-135		%	4/22/05	4/22/05

Run #: 0422C20  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed: 5/19/05 6:23:27 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1131

Sample Collection Date: 4/22/05

ARF: 47233

APPL ID: AX18578

QCG: \$86TTS-050422BC-86050

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 23.5 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	7	1.1	ug/Kg	4/22/05	4/22/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	7	1.6	ug/Kg	4/22/05	4/22/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	7	0.63	ug/Kg	4/22/05	4/22/05
EPA 8260B	1,1-Dichloroethane	Not detected	7	1.5	ug/Kg	4/22/05	4/22/05
EPA 8260B	1,1-Dichloroethane	Not detected	7	1.0	ug/Kg	4/22/05	4/22/05
EPA 8260B	1,2-Dichloroethane	Not detected	7	0.94	ug/Kg	4/22/05	4/22/05
EPA 8260B	1,2-Dichloropropane	Not detected	7	0.81	ug/Kg	4/22/05	4/22/05
EPA 8260B	2-Butanone	Not detected	65	0.93	ug/Kg	4/22/05	4/22/05
EPA 8260B	2-Hexanone	Not detected	65	0.21	ug/Kg	4/22/05	4/22/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	65	1.2	ug/Kg	4/22/05	4/22/05
EPA 8260B	Acetone	Not detected	130	3.7	ug/Kg	4/22/05	4/22/05
EPA 8260B	Benzene	Not detected	7	0.82	ug/Kg	4/22/05	4/22/05
EPA 8260B	Bromodichloromethane	Not detected	7	0.90	ug/Kg	4/22/05	4/22/05
EPA 8260B	Bromoform	Not detected	7	1.0	ug/Kg	4/22/05	4/22/05
EPA 8260B	Bromomethane	Not detected	13	2.1	ug/Kg	4/22/05	4/22/05
EPA 8260B	Carbon disulfide	Not detected	7	1.4	ug/Kg	4/22/05	4/22/05
EPA 8260B	Carbon tetrachloride	Not detected	7	1.0	ug/Kg	4/22/05	4/22/05
EPA 8260B	Chlorobenzene	Not detected	7	0.64	ug/Kg	4/22/05	4/22/05
EPA 8260B	Chloroethane	Not detected	7	2.0	ug/Kg	4/22/05	4/22/05
EPA 8260B	Chloroform	Not detected	7	1.9	ug/Kg	4/22/05	4/22/05
EPA 8260B	Chloromethane	Not detected	7	2.4	ug/Kg	4/22/05	4/22/05
EPA 8260B	cis-1,2-Dichloroethene	11	7	1.4	ug/Kg	4/22/05	4/22/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	7	0.61	ug/Kg	4/22/05	4/22/05
EPA 8260B	Dibromochloromethane	Not detected	7	1.1	ug/Kg	4/22/05	4/22/05
EPA 8260B	Ethylbenzene	Not detected	7	0.84	ug/Kg	4/22/05	4/22/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	7	1.2	ug/Kg	4/22/05	4/22/05
EPA 8260B	Methylene chloride	Not detected	65	6.0	ug/Kg	4/22/05	4/22/05
EPA 8260B	Styrene	Not detected	7	0.90	ug/Kg	4/22/05	4/22/05
EPA 8260B	Tetrachloroethene	Not detected	7	0.71	ug/Kg	4/22/05	4/22/05
EPA 8260B	Toluene	Not detected	7	0.85	ug/Kg	4/22/05	4/22/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	7	1.8	ug/Kg	4/22/05	4/22/05

Run #: 0422C21  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed: 5/19/05 6:23:27 PM  
APPL-F1-SC-MCRs/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1131

Sample Collection Date: 4/22/05

ARF: 47233

APPL ID: AX18578

QCG: \$86TTS-050422BC-86050

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	7	0.56	ug/Kg	4/22/05	4/22/05
EPA 8260B	Trichloroethene	29	7	0.93	ug/Kg	4/22/05	4/22/05
EPA 8260B	Vinyl Acetate	Not detected	65	1.3	ug/Kg	4/22/05	4/22/05
EPA 8260B	Vinyl chloride	Not detected	7	2.2	ug/Kg	4/22/05	4/22/05
EPA 8260B	Xylenes	Not detected	20	0.89	ug/Kg	4/22/05	4/22/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	107	52-149		%	4/22/05	4/22/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	97.7	65-135		%	4/22/05	4/22/05
EPA 8260B	Surrogate recovery: Toluene-d8	89.1	65-135		%	4/22/05	4/22/05

Run #: 0422C21  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed: 5/19/05 6:23 27 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47233

Sample ID: 86-WOPT-1132

APPL ID: AX18579

Sample Collection Date: 4/22/05

QCQ: S86TTS-050422BC-85050

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 15.3 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	0.96	ug/Kg	4/22/05	4/22/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.5	ug/Kg	4/22/05	4/22/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.57	ug/Kg	4/22/05	4/22/05
EPA 8260B	1,1-Dichloroethane	Not detected	6	1.3	ug/Kg	4/22/05	4/22/05
EPA 8260B	1,1-Dichloroethene	Not detected	6	0.93	ug/Kg	4/22/05	4/22/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.85	ug/Kg	4/22/05	4/22/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.73	ug/Kg	4/22/05	4/22/05
EPA 8260B	2-Butanone	Not detected	59	0.84	ug/Kg	4/22/05	4/22/05
EPA 8260B	2-Hexanone	Not detected	59	0.19	ug/Kg	4/22/05	4/22/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	59	1.1	ug/Kg	4/22/05	4/22/05
EPA 8260B	Acetone	Not detected	120	3.3	ug/Kg	4/22/05	4/22/05
EPA 8260B	Benzene	Not detected	6	0.74	ug/Kg	4/22/05	4/22/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.81	ug/Kg	4/22/05	4/22/05
EPA 8260B	Bromoform	Not detected	6	0.94	ug/Kg	4/22/05	4/22/05
EPA 8260B	Bromomethane	Not detected	12	1.9	ug/Kg	4/22/05	4/22/05
EPA 8260B	Carbon disulfide	Not detected	6	1.3	ug/Kg	4/22/05	4/22/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.94	ug/Kg	4/22/05	4/22/05
EPA 8260B	Chlorobenzene	Not detected	6	0.58	ug/Kg	4/22/05	4/22/05
EPA 8260B	Chloroethane	Not detected	6	1.8	ug/Kg	4/22/05	4/22/05
EPA 8260B	Chloroform	Not detected	6	1.7	ug/Kg	4/22/05	4/22/05
EPA 8260B	Chloromethane	Not detected	6	2.1	ug/Kg	4/22/05	4/22/05
EPA 8260B	cis-1,2-Dichloroethene	13	6	1.3	ug/Kg	4/22/05	4/22/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.55	ug/Kg	4/22/05	4/22/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.0	ug/Kg	4/22/05	4/22/05
EPA 8260B	Ethylbenzene	Not detected	6	0.76	ug/Kg	4/22/05	4/22/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.0	ug/Kg	4/22/05	4/22/05
EPA 8260B	Methylene chloride	Not detected	59	5.4	ug/Kg	4/22/05	4/22/05
EPA 8260B	Styrene	Not detected	6	0.81	ug/Kg	4/22/05	4/22/05
EPA 8260B	Tetrachloroethene	Not detected	6	0.64	ug/Kg	4/22/05	4/22/05
EPA 8260B	Toluene	Not detected	6	0.77	ug/Kg	4/22/05	4/22/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.6	ug/Kg	4/22/05	4/22/05

Run #: 0422C22  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed: 5/19/05 6:23:27 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

ARF: 47233

Sample ID: 86-WOPT-1132

APPL ID: AX18579

Sample Collection Date: 4/22/05

QCG: S86TTS-050422BC-86050

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.51	ug/Kg	4/22/05	4/22/05
EPA 8260B	Trichloroethene	21	6	0.84	ug/Kg	4/22/05	4/22/05
EPA 8260B	Vinyl Acetate	Not detected	59	1.2	ug/Kg	4/22/05	4/22/05
EPA 8260B	Vinyl chloride	Not detected	6	2.0	ug/Kg	4/22/05	4/22/05
EPA 8260B	Xylenes	Not detected	18	0.80	ug/Kg	4/22/05	4/22/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	111	52-149		%	4/22/05	4/22/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	98.3	65-135		%	4/22/05	4/22/05
EPA 8260B	Surrogate recovery: Toluene-d8	87.0	65-135		%	4/22/05	4/22/05

Run #: 0422C22  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed 5/19/05 6:23:27 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

ARF: 47233

Sample ID: 86-WOPT-1133

APPL ID: AX18580

Sample Collection Date: 4/22/05

QCQ: \$86TTS-050422BC-86050

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 20.4 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	1.0	ug/Kg	4/22/05	4/22/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.6	ug/Kg	4/22/05	4/22/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.60	ug/Kg	4/22/05	4/22/05
EPA 8260B	1,1-Dichloroethane	Not detected	6	1.4	ug/Kg	4/22/05	4/22/05
EPA 8260B	1,1-Dichloroethene	Not detected	6	0.99	ug/Kg	4/22/05	4/22/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.90	ug/Kg	4/22/05	4/22/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.78	ug/Kg	4/22/05	4/22/05
EPA 8260B	2-Butanone	Not detected	63	0.89	ug/Kg	4/22/05	4/22/05
EPA 8260B	2-Hexanone	Not detected	63	0.20	ug/Kg	4/22/05	4/22/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	63	1.2	ug/Kg	4/22/05	4/22/05
EPA 8260B	Acetone	Not detected	130	3.5	ug/Kg	4/22/05	4/22/05
EPA 8260B	Benzene	Not detected	6	0.79	ug/Kg	4/22/05	4/22/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.87	ug/Kg	4/22/05	4/22/05
EPA 8260B	Bromoform	Not detected	6	1.0	ug/Kg	4/22/05	4/22/05
EPA 8260B	Bromomethane	Not detected	13	2.0	ug/Kg	4/22/05	4/22/05
EPA 8260B	Carbon disulfide	Not detected	6	1.4	ug/Kg	4/22/05	4/22/05
EPA 8260B	Carbon tetrachloride	Not detected	6	1.0	ug/Kg	4/22/05	4/22/05
EPA 8260B	Chlorobenzene	Not detected	6	0.62	ug/Kg	4/22/05	4/22/05
EPA 8260B	Chloroethane	Not detected	6	2.0	ug/Kg	4/22/05	4/22/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	4/22/05	4/22/05
EPA 8260B	Chloromethane	Not detected	6	2.3	ug/Kg	4/22/05	4/22/05
EPA 8260B	cis-1,2-Dichloroethene	3.8 J	6	1.3	ug/Kg	4/22/05	4/22/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.59	ug/Kg	4/22/05	4/22/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.1	ug/Kg	4/22/05	4/22/05
EPA 8260B	Ethylbenzene	Not detected	6	0.80	ug/Kg	4/22/05	4/22/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/22/05	4/22/05
EPA 8260B	Methylene chloride	Not detected	63	5.8	ug/Kg	4/22/05	4/22/05
EPA 8260B	Styrene	Not detected	6	0.87	ug/Kg	4/22/05	4/22/05
EPA 8260B	Tetrachloroethene	0.95 J	6	0.68	ug/Kg	4/22/05	4/22/05
EPA 8260B	Toluene	Not detected	6	0.82	ug/Kg	4/22/05	4/22/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.7	ug/Kg	4/22/05	4/22/05

J = Estimated value, below quantitation limit.

Run #: 0422C23  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed: 5/19/05 6:23:27 PM  
APPL-F1-SC-MCRos/MCPQL-REG MDLs



**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47233

Sample ID: 86-WOPT-1133

APPL ID: AX18580

Sample Collection Date: 4/22/05

QCG: \$86TTS-050422BC-86050

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.54	ug/Kg	4/22/05	4/22/05
EPA 8260B	Trichloroethene	15	6	0.89	ug/Kg	4/22/05	4/22/05
EPA 8260B	Vinyl Acetate	Not detected	63	1.3	ug/Kg	4/22/05	4/22/05
EPA 8260B	Vinyl chloride	Not detected	6	2.1	ug/Kg	4/22/05	4/22/05
EPA 8260B	Xylenes	Not detected	19	0.85	ug/Kg	4/22/05	4/22/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	109	52-149		%	4/22/05	4/22/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	100	65-135		%	4/22/05	4/22/05
EPA 8260B	Surrogate recovery: Toluene-d8	89.2	65-135		%	4/22/05	4/22/05

J = Estimated value, below quantitation limit.

Run #: 0422C23  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed: 5/19/05 6:23:27 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47233

Sample ID: 86-WOPT-1134

APPL ID: AX18581

Sample Collection Date: 4/22/05

QCG: \$86TTS-050422BC-86050

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 22.4 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	1.0	ug/Kg	4/22/05	4/22/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.6	ug/Kg	4/22/05	4/22/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.62	ug/Kg	4/22/05	4/22/05
EPA 8260B	1,1-Dichloroethane	Not detected	6	1.5	ug/Kg	4/22/05	4/22/05
EPA 8260B	1,1-Dichloroethene	Not detected	6	1.0	ug/Kg	4/22/05	4/22/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.93	ug/Kg	4/22/05	4/22/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.80	ug/Kg	4/22/05	4/22/05
EPA 8260B	2-Butanone	Not detected	64	0.91	ug/Kg	4/22/05	4/22/05
EPA 8260B	2-Hexanone	Not detected	64	0.21	ug/Kg	4/22/05	4/22/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	64	1.2	ug/Kg	4/22/05	4/22/05
EPA 8260B	Acetone	Not detected	130	3.6	ug/Kg	4/22/05	4/22/05
EPA 8260B	Benzene	Not detected	6	0.81	ug/Kg	4/22/05	4/22/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.89	ug/Kg	4/22/05	4/22/05
EPA 8260B	Bromoform	Not detected	6	1.0	ug/Kg	4/22/05	4/22/05
EPA 8260B	Bromomethane	Not detected	13	2.1	ug/Kg	4/22/05	4/22/05
EPA 8260B	Carbon disulfide	Not detected	6	1.4	ug/Kg	4/22/05	4/22/05
EPA 8260B	Carbon tetrachloride	Not detected	6	1.0	ug/Kg	4/22/05	4/22/05
EPA 8260B	Chlorobenzene	Not detected	6	0.63	ug/Kg	4/22/05	4/22/05
EPA 8260B	Chloroethane	Not detected	6	2.0	ug/Kg	4/22/05	4/22/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	4/22/05	4/22/05
EPA 8260B	Chloromethane	Not detected	6	2.4	ug/Kg	4/22/05	4/22/05
EPA 8260B	cis-1,2-Dichloroethene	Not detected	6	1.4	ug/Kg	4/22/05	4/22/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.61	ug/Kg	4/22/05	4/22/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.1	ug/Kg	4/22/05	4/22/05
EPA 8260B	Ethylbenzene	Not detected	6	0.82	ug/Kg	4/22/05	4/22/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/22/05	4/22/05
EPA 8260B	Methylene chloride	Not detected	64	5.9	ug/Kg	4/22/05	4/22/05
EPA 8260B	Styrene	Not detected	6	0.89	ug/Kg	4/22/05	4/22/05
EPA 8260B	Tetrachloroethene	Not detected	6	0.70	ug/Kg	4/22/05	4/22/05
EPA 8260B	Toluene	Not detected	6	0.84	ug/Kg	4/22/05	4/22/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.7	ug/Kg	4/22/05	4/22/05

Run #: 0422C24  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed: 5/19/05 6:23:27 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1134

Sample Collection Date: 4/22/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47233

APPL ID: AX18581

QCG: \$86TTS-0504223C-86050

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.55	ug/Kg	4/22/05	4/22/05
EPA 8260B	Trichloroethene	Not detected	6	0.91	ug/Kg	4/22/05	4/22/05
EPA 8260B	Vinyl Acetate	Not detected	64	1.3	ug/Kg	4/22/05	4/22/05
EPA 8260B	Vinyl chloride	Not detected	6	2.2	ug/Kg	4/22/05	4/22/05
EPA 8260B	Xylenes	Not detected	19	0.88	ug/Kg	4/22/05	4/22/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	121	52-149		%	4/22/05	4/22/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	99.1	65-135		%	4/22/05	4/22/05
EPA 8260B	Surrogate recovery: Toluene-d8	89.8	65-135		%	4/22/05	4/22/05

Run #: 0422C24  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed: 5/19/05 6:23:27 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Blenkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47233

Sample ID: 86-WOPT-1135

APPL ID: AX18582

Sample Collection Date: 4/22/05

QCQ: S86TTW-050425AS-87177

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	1,1,1-Trichloroethene	Not detected	0.5	0.14	ug/L	4/25/05	4/25/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	4/25/05	4/25/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	4/25/05	4/25/05
EPA 8260B	1,1-Dichloroethane	Not detected	0.5	0.19	ug/L	4/25/05	4/25/05
EPA 8260B	1,1-Dichloroethene	Not detected	0.5	0.30	ug/L	4/25/05	4/25/05
EPA 8260B	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	4/25/05	4/25/05
EPA 8260B	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	4/25/05	4/25/05
EPA 8260B	2-Butanone	Not detected	5	0.6	ug/L	4/25/05	4/25/05
EPA 8260B	2-Hexanone	Not detected	5	0.92	ug/L	4/25/05	4/25/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	4/25/05	4/25/05
EPA 8260B	Acetone	Not detected	5	0.95	ug/L	4/25/05	4/25/05
EPA 8260B	Benzene	Not detected	0.5	0.16	ug/L	4/25/05	4/25/05
EPA 8260B	Bromodichloromethane	Not detected	0.5	0.14	ug/L	4/25/05	4/25/05
EPA 8260B	Bromoform	Not detected	0.5	0.14	ug/L	4/25/05	4/25/05
EPA 8260B	Bromomethane	Not detected	1	0.24	ug/L	4/25/05	4/25/05
EPA 8260B	Carbon disulfide	Not detected	0.5	0.2	ug/L	4/25/05	4/25/05
EPA 8260B	Carbon tetrachloride	Not detected	0.5	0.10	ug/L	4/25/05	4/25/05
EPA 8260B	Chlorobenzene	Not detected	0.5	0.21	ug/L	4/25/05	4/25/05
EPA 8260B	Chloroethane	Not detected	0.5	0.21	ug/L	4/25/05	4/25/05
EPA 8260B	Chloroform	Not detected	0.5	0.16	ug/L	4/25/05	4/25/05
EPA 8260B	Chloromethane	Not detected	0.5	0.31	ug/L	4/25/05	4/25/05
EPA 8260B	cis-1,2-Dichloroethene	Not detected	0.5	0.16	ug/L	4/25/05	4/25/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	4/25/05	4/25/05
EPA 8260B	Dibromochloromethane	Not detected	0.5	0.19	ug/L	4/25/05	4/25/05
EPA 8260B	Ethylbenzene	Not detected	0.5	0.23	ug/L	4/25/05	4/25/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	4/25/05	4/25/05
EPA 8260B	Methylene chloride	Not detected	5	0.35	ug/L	4/25/05	4/25/05
EPA 8260B	Styrene	Not detected	0.5	0.25	ug/L	4/25/05	4/25/05
EPA 8260B	Tetrachloroethene	Not detected	0.5	0.15	ug/L	4/25/05	4/25/05
EPA 8260B	Toluene	Not detected	0.5	0.17	ug/L	4/25/05	4/25/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	0.5	0.19	ug/L	4/25/05	4/25/05

Run #: 0425S16  
Instrument: Sweetpea  
Sequence: S050425  
Dilution Factor: 1  
Initials: LF

Printed: 5/21/05 8:49:15 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1135

Sample Collection Date: 4/22/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47233

APPL ID: AX18582

QCG: \$86TTW-050425AS-87177

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	4/25/05	4/25/05
EPA 8260B	Trichloroethene	Not detected	0.5	0.16	ug/L	4/25/05	4/25/05
EPA 8260B	Vinyl Acetate	Not detected	5	0.31	ug/L	4/25/05	4/25/05
EPA 8260B	Vinyl chloride	Not detected	0.5	0.23	ug/L	4/25/05	4/25/05
EPA 8260B	Xylenes	Not detected	1.5	0.19	ug/L	4/25/05	4/25/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	82.5	62-139		%	4/25/05	4/25/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	99.4	75-125		%	4/25/05	4/25/05
EPA 8260B	Surrogate recovery: Toluene-d8	103	75-125		%	4/25/05	4/25/05

Run #: 0425S16  
Instrument: Sweetpea  
Sequence: S050425  
Dilution Factor: 1  
Initials: LF

Printed: 5/21/05 8:49:15 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E Deere Avenue, Ste 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 89 Moffett Airfield

ARF: 47233

Sample ID: 86-WOPT-610

APPL ID: AX18583

Sample Collection Date: 4/22/05

QCG: \$86TTS-050422BC-86050

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 17.7 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	0.98	ug/Kg	4/23/05	4/23/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.5	ug/Kg	4/23/05	4/23/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.58	ug/Kg	4/23/05	4/23/05
EPA 8260B	1,1-Dichloroethane	Not detected	6	1.4	ug/Kg	4/23/05	4/23/05
EPA 8260B	1,1-Dichloroethane	2.7 J	6	0.96	ug/Kg	4/23/05	4/23/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.87	ug/Kg	4/23/05	4/23/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.75	ug/Kg	4/23/05	4/23/05
EPA 8260B	2-Butanone	Not detected	61	0.86	ug/Kg	4/23/05	4/23/05
EPA 8260B	2-Hexanone	Not detected	61	0.19	ug/Kg	4/23/05	4/23/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	61	1.1	ug/Kg	4/23/05	4/23/05
EPA 8260B	Acetone	Not detected	120	3.4	ug/Kg	4/23/05	4/23/05
EPA 8260B	Benzene	Not detected	6	0.77	ug/Kg	4/23/05	4/23/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.84	ug/Kg	4/23/05	4/23/05
EPA 8260B	Bromoform	Not detected	6	0.97	ug/Kg	4/23/05	4/23/05
EPA 8260B	Bromomethane	Not detected	12	1.9	ug/Kg	4/23/05	4/23/05
EPA 8260B	Carbon disulfide	Not detected	6	1.3	ug/Kg	4/23/05	4/23/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.97	ug/Kg	4/23/05	4/23/05
EPA 8260B	Chlorobenzene	Not detected	6	0.60	ug/Kg	4/23/05	4/23/05
EPA 8260B	Chloroethane	Not detected	6	1.9	ug/Kg	4/23/05	4/23/05
EPA 8260B	Chloroform	Not detected	6	1.7	ug/Kg	4/23/05	4/23/05
EPA 8260B	Chloromethane	Not detected	6	2.2	ug/Kg	4/23/05	4/23/05
EPA 8260B	cis-1,2-Dichloroethene	300	6	1.3	ug/Kg	4/23/05	4/23/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.57	ug/Kg	4/23/05	4/23/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.0	ug/Kg	4/23/05	4/23/05
EPA 8260B	Ethylbenzene	Not detected	6	0.78	ug/Kg	4/23/05	4/23/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/23/05	4/23/05
EPA 8260B	Methylene chloride	Not detected	61	5.6	ug/Kg	4/23/05	4/23/05
EPA 8260B	Styrene	Not detected	6	0.84	ug/Kg	4/23/05	4/23/05
EPA 8260B	Tetrachloroethene	540	6	0.66	ug/Kg	4/23/05	4/23/05
EPA 8260B	Toluene	Not detected	6	0.79	ug/Kg	4/23/05	4/23/05
EPA 8260B	trans-1,2-Dichloroethene	38	6	1.6	ug/Kg	4/23/05	4/23/05

J = Estimated value, below quantitation limit.

Run #: 0422C25  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed: 5/19/05 6:23:27 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-610

Sample Collection Date: 4/22/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47233

APPL ID: AX18583

QCG: S86TTS-050422BC-86050

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.52	ug/Kg	4/23/05	4/23/05
EPA 8260B	Trichloroethene	280	6	0.86	ug/Kg	4/23/05	4/23/05
EPA 8260B	Vinyl Acetate	Not detected	61	1.2	ug/Kg	4/23/05	4/23/05
EPA 8260B	Vinyl chloride	Not detected	6	2.0	ug/Kg	4/23/05	4/23/05
EPA 8260B	Xylenes	Not detected	18	0.83	ug/Kg	4/23/05	4/23/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	113	52-149		%	4/23/05	4/23/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	95.7	65-135		%	4/23/05	4/23/05
EPA 8260B	Surrogate recovery: Toluene-d8	93.3	65-135		%	4/23/05	4/23/05

J = Estimated value, below quantitation limit.

Run #: 0422C25  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed 5/19/05 6:23:27 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47233

Sample ID: 86-WOPT-611

APPL ID: AX18584

Sample Collection Date: 4/22/05

CCG: \$86TTS-050422BC-86050

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 26.7 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	7	1.1	ug/Kg	4/23/05	4/23/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	7	1.7	ug/Kg	4/23/05	4/23/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	7	0.65	ug/Kg	4/23/05	4/23/05
EPA 8260B	1,1-Dichloroethane	11	7	1.5	ug/Kg	4/23/05	4/23/05
EPA 8260B	1,1-Dichloroethane	4.3 J	7	1.1	ug/Kg	4/23/05	4/23/05
EPA 8260B	1,2-Dichloroethane	3.2 J	7	0.98	ug/Kg	4/23/05	4/23/05
EPA 8260B	1,2-Dichloropropane	Not detected	7	0.85	ug/Kg	4/23/05	4/23/05
EPA 8260B	2-Butanone	Not detected	68	0.97	ug/Kg	4/23/05	4/23/05
EPA 8260B	2-Hexanone	Not detected	68	0.22	ug/Kg	4/23/05	4/23/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	68	1.3	ug/Kg	4/23/05	4/23/05
EPA 8260B	Acetone	Not detected	140	3.8	ug/Kg	4/23/05	4/23/05
EPA 8260B	Benzene	Not detected	7	0.86	ug/Kg	4/23/05	4/23/05
EPA 8260B	Bromodichloromethane	Not detected	7	0.94	ug/Kg	4/23/05	4/23/05
EPA 8260B	Bromoform	Not detected	7	1.1	ug/Kg	4/23/05	4/23/05
EPA 8260B	Bromomethane	Not detected	14	2.2	ug/Kg	4/23/05	4/23/05
EPA 8260B	Carbon disulfide	Not detected	7	1.5	ug/Kg	4/23/05	4/23/05
EPA 8260B	Carbon tetrachloride	Not detected	7	1.1	ug/Kg	4/23/05	4/23/05
EPA 8260B	Chlorobenzene	Not detected	7	0.67	ug/Kg	4/23/05	4/23/05
EPA 8260B	Chloroethane	Not detected	7	2.1	ug/Kg	4/23/05	4/23/05
EPA 8260B	Chloroform	Not detected	7	2.0	ug/Kg	4/23/05	4/23/05
EPA 8260B	Chloromethane	Not detected	7	2.5	ug/Kg	4/23/05	4/23/05
EPA 8260B	cis-1,2-Dichloroethene	250	7	1.5	ug/Kg	4/23/05	4/23/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	7	0.64	ug/Kg	4/23/05	4/23/05
EPA 8260B	Dibromochloromethane	Not detected	7	1.2	ug/Kg	4/23/05	4/23/05
EPA 8260B	Ethylbenzene	Not detected	7	0.87	ug/Kg	4/23/05	4/23/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	7	1.2	ug/Kg	4/23/05	4/23/05
EPA 8260B	Methylene chloride	Not detected	68	6.2	ug/Kg	4/23/05	4/23/05
EPA 8260B	Styrene	Not detected	7	0.94	ug/Kg	4/23/05	4/23/05
EPA 8260B	Tetrachloroethene	21	7	0.74	ug/Kg	4/23/05	4/23/05
EPA 8260B	Toluene	Not detected	7	0.89	ug/Kg	4/23/05	4/23/05
EPA 8260B	trans-1,2-Dichloroethene	29	7	1.8	ug/Kg	4/23/05	4/23/05

J = Estimated value, below quantitation limit.

Run #: 0422C26  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed: 5/19/05 6:23:27 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



# EPA 8260B

Tetra Tech FW, Inc.  
1940 E Deere Avenue, Ste 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-611

Sample Collection Date: 4/22/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47233

APPL ID: AX18584

QCG: \$86TTS-050422BC-86050

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	7	0.59	ug/Kg	4/23/05	4/23/05
EPA 8260B	Trichloroethene	44	7	0.97	ug/Kg	4/23/05	4/23/05
EPA 8260B	Vinyl Acetate	Not detected	68	1.4	ug/Kg	4/23/05	4/23/05
EPA 8260B	Vinyl chloride	Not detected	7	2.3	ug/Kg	4/23/05	4/23/05
EPA 8260B	Xylenes	Not detected	20	0.93	ug/Kg	4/23/05	4/23/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	112	52-149		%	4/23/05	4/23/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	89.2	65-135		%	4/23/05	4/23/05
EPA 8260B	Surrogate recovery: Toluene-d8	96.4	65-135		%	4/23/05	4/23/05

J = Estimated value, below quantitation limit.

Run #: 0422C26  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed 5/19/05 6:23:27 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 83 Moffett Airfield

ARF: 47233

Sample ID: 86-WOPT-612

APPL ID: AX18585

Sample Collection Date: 4/22/05

CCG: S86TTS-050422BC-86050

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 18.1 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	0.99	ug/Kg	4/23/05	4/23/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.5	ug/Kg	4/23/05	4/23/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.59	ug/Kg	4/23/05	4/23/05
EPA 8260B	1,1-Dichloroethane	Not detected	6	1.4	ug/Kg	4/23/05	4/23/05
EPA 8260B	1,1-Dichloroethene	1.1 J	6	0.96	ug/Kg	4/23/05	4/23/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.88	ug/Kg	4/23/05	4/23/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.76	ug/Kg	4/23/05	4/23/05
EPA 8260B	2-Butanone	Not detected	61	0.87	ug/Kg	4/23/05	4/23/05
EPA 8260B	2-Hexanone	Not detected	61	0.20	ug/Kg	4/23/05	4/23/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	61	1.1	ug/Kg	4/23/05	4/23/05
EPA 8260B	Acetone	Not detected	120	3.4	ug/Kg	4/23/05	4/23/05
EPA 8260B	Benzene	Not detected	6	0.77	ug/Kg	4/23/05	4/23/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.84	ug/Kg	4/23/05	4/23/05
EPA 8260B	Bromoform	Not detected	6	0.98	ug/Kg	4/23/05	4/23/05
EPA 8260B	Bromomethane	Not detected	12	2.0	ug/Kg	4/23/05	4/23/05
EPA 8260B	Carbon disulfide	Not detected	6	1.3	ug/Kg	4/23/05	4/23/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.98	ug/Kg	4/23/05	4/23/05
EPA 8260B	Chlorobenzene	Not detected	6	0.60	ug/Kg	4/23/05	4/23/05
EPA 8260B	Chloroethane	Not detected	6	1.9	ug/Kg	4/23/05	4/23/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	4/23/05	4/23/05
EPA 8260B	Chloromethane	Not detected	6	2.2	ug/Kg	4/23/05	4/23/05
EPA 8260B	cis-1,2-Dichloroethene	52	6	1.3	ug/Kg	4/23/05	4/23/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.57	ug/Kg	4/23/05	4/23/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.0	ug/Kg	4/23/05	4/23/05
EPA 8260B	Ethylbenzene	Not detected	6	0.78	ug/Kg	4/23/05	4/23/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/23/05	4/23/05
EPA 8260B	Methylene chloride	Not detected	61	5.6	ug/Kg	4/23/05	4/23/05
EPA 8260B	Styrene	Not detected	6	0.84	ug/Kg	4/23/05	4/23/05
EPA 8260B	Tetrachloroethene	1.0 J	6	0.66	ug/Kg	4/23/05	4/23/05
EPA 8260B	Toluene	Not detected	6	0.79	ug/Kg	4/23/05	4/23/05
EPA 8260B	trans-1,2-Dichloroethene	82	6	1.6	ug/Kg	4/23/05	4/23/05

J = Estimated value, below quantitation limit.

Run #: 0422C27  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed: 5/19/05 6:23:27 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47233

Sample ID: 86-WOPT-612

APPL ID: AX18585

Sample Collection Date: 4/22/05

OCG: \$86TTS-050422BC-86050

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.53	ug/Kg	4/23/05	4/23/05
EPA 8260B	Trichloroethene	8.0	6	0.87	ug/Kg	4/23/05	4/23/05
EPA 8260B	Vinyl Acetate	Not detected	61	1.2	ug/Kg	4/23/05	4/23/05
EPA 8260B	Vinyl chloride	Not detected	6	2.0	ug/Kg	4/23/05	4/23/05
EPA 8260B	Xylenes	Not detected	18	0.83	ug/Kg	4/23/05	4/23/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	109	52-149		%	4/23/05	4/23/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	98.7	65-135		%	4/23/05	4/23/05
EPA 8260B	Surrogate recovery: Toluene-d8	91.8	65-135		%	4/23/05	4/23/05

J = Estimated value, below quantitation limit.

Run #: 0422C27  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed 5/19/05 6:23:27 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47233

Sample ID: 86-WOPT-613

APPL ID: AX18586

Sample Collection Date: 4/22/05

CCG: S86TTS-050422BC-86050

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 23.1 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	7	1.0	ug/Kg	4/23/05	4/23/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	7	1.6	ug/Kg	4/23/05	4/23/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	7	0.62	ug/Kg	4/23/05	4/23/05
EPA 8260B	1,1-Dichloroethane	Not detected	7	1.5	ug/Kg	4/23/05	4/23/05
EPA 8260B	1,1-Dichloroethene	Not detected	7	1.0	ug/Kg	4/23/05	4/23/05
EPA 8260B	1,2-Dichloroethane	Not detected	7	0.94	ug/Kg	4/23/05	4/23/05
EPA 8260B	1,2-Dichloropropane	Not detected	7	0.81	ug/Kg	4/23/05	4/23/05
EPA 8260B	2-Butanone	Not detected	65	0.92	ug/Kg	4/23/05	4/23/05
EPA 8260B	2-Hexanone	Not detected	65	0.21	ug/Kg	4/23/05	4/23/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	65	1.2	ug/Kg	4/23/05	4/23/05
EPA 8260B	Acetone	Not detected	130	3.6	ug/Kg	4/23/05	4/23/05
EPA 8260B	Benzene	Not detected	7	0.82	ug/Kg	4/23/05	4/23/05
EPA 8260B	Bromodichloromethane	Not detected	7	0.90	ug/Kg	4/23/05	4/23/05
EPA 8260B	Bromoform	Not detected	7	1.0	ug/Kg	4/23/05	4/23/05
EPA 8260B	Bromomethane	Not detected	13	2.1	ug/Kg	4/23/05	4/23/05
EPA 8260B	Carbon disulfide	Not detected	7	1.4	ug/Kg	4/23/05	4/23/05
EPA 8260B	Carbon tetrachloride	Not detected	7	1.0	ug/Kg	4/23/05	4/23/05
EPA 8260B	Chlorobenzene	Not detected	7	0.64	ug/Kg	4/23/05	4/23/05
EPA 8260B	Chloroethane	Not detected	7	2.0	ug/Kg	4/23/05	4/23/05
EPA 8260B	Chloroform	Not detected	7	1.9	ug/Kg	4/23/05	4/23/05
EPA 8260B	Chloromethane	Not detected	7	2.4	ug/Kg	4/23/05	4/23/05
EPA 8260B	cis-1,2-Dichloroethene	18	7	1.4	ug/Kg	4/23/05	4/23/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	7	0.61	ug/Kg	4/23/05	4/23/05
EPA 8260B	Dibromochloromethane	Not detected	7	1.1	ug/Kg	4/23/05	4/23/05
EPA 8260B	Ethylbenzene	Not detected	7	0.83	ug/Kg	4/23/05	4/23/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	7	1.2	ug/Kg	4/23/05	4/23/05
EPA 8260B	Methylene chloride	Not detected	65	6.0	ug/Kg	4/23/05	4/23/05
EPA 8260B	Styrene	Not detected	7	0.90	ug/Kg	4/23/05	4/23/05
EPA 8260B	Tetrachloroethene	Not detected	7	0.70	ug/Kg	4/23/05	4/23/05
EPA 8260B	Toluene	Not detected	7	0.85	ug/Kg	4/23/05	4/23/05
EPA 8260B	trans-1,2-Dichloroethene	12	7	1.8	ug/Kg	4/23/05	4/23/05

J = Estimated value, below quantitation limit.

Run #: 0422C28  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed 5/19/05 6:23:27 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1540 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47233

Sample ID: 86-WOPT-613

APPL ID: AX18586

Sample Collection Date: 4/22/05

QCG: S86TTS-050422BC-86050

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	7	0.56	ug/Kg	4/23/05	4/23/05
EPA 8260B	Trichloroethene	3.8 J	7	0.92	ug/Kg	4/23/05	4/23/05
EPA 8260B	Vinyl Acetate	Not detected	65	1.3	ug/Kg	4/23/05	4/23/05
EPA 8260B	Vinyl chloride	Not detected	7	2.2	ug/Kg	4/23/05	4/23/05
EPA 8260B	Xylenes	Not detected	20	0.88	ug/Kg	4/23/05	4/23/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	124	52-149		%	4/23/05	4/23/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	103	65-135		%	4/23/05	4/23/05
EPA 8260B	Surrogate recovery: Toluene-d8	92.8	65-135		%	4/23/05	4/23/05

J = Estimated value, below quantitation limit.

Run #: 0422C28  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed: 5/19/05 6:23:27 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47233

Sample ID: 86-WOPT-614

APPL ID: AX18587

Sample Collection Date: 4/22/05

QCG: S86TTS-050422BC-86050

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 23.1 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	7	1.0	ug/Kg	4/23/05	4/23/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	7	1.6	ug/Kg	4/23/05	4/23/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	7	0.62	ug/Kg	4/23/05	4/23/05
EPA 8260B	1,1-Dichloroethane	2.2 J	7	1.5	ug/Kg	4/23/05	4/23/05
EPA 8260B	1,1-Dichloroethene	4.1 J	7	1.0	ug/Kg	4/23/05	4/23/05
EPA 8260B	1,2-Dichloroethane	Not detected	7	0.94	ug/Kg	4/23/05	4/23/05
EPA 8260B	1,2-Dichloropropane	Not detected	7	0.81	ug/Kg	4/23/05	4/23/05
EPA 8260B	2-Butanone	Not detected	65	0.92	ug/Kg	4/23/05	4/23/05
EPA 8260B	2-Hexanone	Not detected	65	0.21	ug/Kg	4/23/05	4/23/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	65	1.2	ug/Kg	4/23/05	4/23/05
EPA 8260B	Acetone	Not detected	130	3.6	ug/Kg	4/23/05	4/23/05
EPA 8260B	Benzene	Not detected	7	0.82	ug/Kg	4/23/05	4/23/05
EPA 8260B	Bromodichloromethane	Not detected	7	0.90	ug/Kg	4/23/05	4/23/05
EPA 8260B	Bromoform	Not detected	7	1.0	ug/Kg	4/23/05	4/23/05
EPA 8260B	Bromomethane	Not detected	13	2.1	ug/Kg	4/23/05	4/23/05
EPA 8260B	Carbon disulfide	Not detected	7	1.4	ug/Kg	4/23/05	4/23/05
EPA 8260B	Carbon tetrachloride	Not detected	7	1.0	ug/Kg	4/23/05	4/23/05
EPA 8260B	Chlorobenzene	Not detected	7	0.64	ug/Kg	4/23/05	4/23/05
EPA 8260B	Chloroethane	Not detected	7	2.0	ug/Kg	4/23/05	4/23/05
EPA 8260B	Chloroform	Not detected	7	1.9	ug/Kg	4/23/05	4/23/05
EPA 8260B	Chloromethane	Not detected	7	2.4	ug/Kg	4/23/05	4/23/05
EPA 8260B	cis-1,2-Dichloroethene	22	7	1.4	ug/Kg	4/23/05	4/23/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	7	0.61	ug/Kg	4/23/05	4/23/05
EPA 8260B	Dibromochloromethane	Not detected	7	1.1	ug/Kg	4/23/05	4/23/05
EPA 8260B	Ethylbenzene	Not detected	7	0.83	ug/Kg	4/23/05	4/23/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	7	1.2	ug/Kg	4/23/05	4/23/05
EPA 8260B	Methylene chloride	Not detected	65	6.0	ug/Kg	4/23/05	4/23/05
EPA 8260B	Styrene	Not detected	7	0.90	ug/Kg	4/23/05	4/23/05
EPA 8260B	Tetrachloroethene	1.4 J	7	0.70	ug/Kg	4/23/05	4/23/05
EPA 8260B	Toluene	Not detected	7	0.85	ug/Kg	4/23/05	4/23/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	7	1.8	ug/Kg	4/23/05	4/23/05

J = Estimated value, below quantitation limit.

Run #: 0422C29

Instrument: Chico

Sequence: C050418

Dilution Factor: 1

Initials: LF

Printed: 5/19/05 6:23:27 PM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47233

**Sample ID: 86-WOPT-614**

**APPL ID: AX18587**

Sample Collection Date: 4/22/05

QCG: \$86TTS-050422BC-86050

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	7	0.56	ug/Kg	4/23/05	4/23/05
EPA 8260B	Trichloroethene	49	7	0.92	ug/Kg	4/23/05	4/23/05
EPA 8260B	Vinyl Acetate	Not detected	65	1.3	ug/Kg	4/23/05	4/23/05
EPA 8260B	Vinyl chloride	Not detected	7	2.2	ug/Kg	4/23/05	4/23/05
EPA 8260B	Xylenes	Not detected	20	0.88	ug/Kg	4/23/05	4/23/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	110	52-149		%	4/23/05	4/23/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	104	65-135		%	4/23/05	4/23/05
EPA 8260B	Surrogate recovery: Toluene-d8	93.0	65-135		%	4/23/05	4/23/05

J = Estimated value, below quantitation limit.

Run #: 0422C29  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed 5/19/05 6:23:27 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

ARF: 47233

Sample ID: 66-WOPT-615

APPL ID: AX18588

Sample Collection Date: 4/22/05

QCG: S86TTS-050422BC-86050

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 17.3 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	0.98	ug/Kg	4/23/05	4/23/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.5	ug/Kg	4/23/05	4/23/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.58	ug/Kg	4/23/05	4/23/05
EPA 8260B	1,1-Dichloroethane	Not detected	6	1.4	ug/Kg	4/23/05	4/23/05
EPA 8260B	1,1-Dichloroethene	2.3 J	6	0.96	ug/Kg	4/23/05	4/23/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.87	ug/Kg	4/23/05	4/23/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.75	ug/Kg	4/23/05	4/23/05
EPA 8260B	2-Butanone	Not detected	60	0.86	ug/Kg	4/23/05	4/23/05
EPA 8260B	2-Hexanone	Not detected	60	0.19	ug/Kg	4/23/05	4/23/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	60	1.1	ug/Kg	4/23/05	4/23/05
EPA 8260B	Acetone	Not detected	120	3.4	ug/Kg	4/23/05	4/23/05
EPA 8260B	Benzene	Not detected	6	0.76	ug/Kg	4/23/05	4/23/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.83	ug/Kg	4/23/05	4/23/05
EPA 8260B	Bromoform	Not detected	6	0.97	ug/Kg	4/23/05	4/23/05
EPA 8260B	Bromomethane	Not detected	12	1.9	ug/Kg	4/23/05	4/23/05
EPA 8260B	Carbon disulfide	Not detected	6	1.3	ug/Kg	4/23/05	4/23/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.97	ug/Kg	4/23/05	4/23/05
EPA 8260B	Chlorobenzene	Not detected	6	0.59	ug/Kg	4/23/05	4/23/05
EPA 8260B	Chloroethane	Not detected	6	1.9	ug/Kg	4/23/05	4/23/05
EPA 8260B	Chloroform	Not detected	6	1.7	ug/Kg	4/23/05	4/23/05
EPA 8260B	Chloromethane	Not detected	6	2.2	ug/Kg	4/23/05	4/23/05
EPA 8260B	cis-1,2-Dichloroethene	6.8	6	1.3	ug/Kg	4/23/05	4/23/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.57	ug/Kg	4/23/05	4/23/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.0	ug/Kg	4/23/05	4/23/05
EPA 8260B	Ethylbenzene	Not detected	6	0.77	ug/Kg	4/23/05	4/23/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	4/23/05	4/23/05
EPA 8260B	Methylene chloride	Not detected	60	5.5	ug/Kg	4/23/05	4/23/05
EPA 8260B	Styrene	Not detected	6	0.83	ug/Kg	4/23/05	4/23/05
EPA 8260B	Tetrachloroethene	16	6	0.65	ug/Kg	4/23/05	4/23/05
EPA 8260B	Toluene	Not detected	6	0.79	ug/Kg	4/23/05	4/23/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.6	ug/Kg	4/23/05	4/23/05

J = Estimated value, below quantitation limit.

Run #: 0422C30  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed: 5/19/05 6:23:27 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-615

Sample Collection Date: 4/22/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47233

APPL ID: AX18588

QCG: \$86TTS-050422BC-86050

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloroprcpene	Not detected	6	0.52	ug/Kg	4/23/05	4/23/05
EPA 8260B	Trichloroethene	190	6	0.86	ug/Kg	4/23/05	4/23/05
EPA 8260B	Vinyl Acetate	Not detected	60	1.2	ug/Kg	4/23/05	4/23/05
EPA 8260B	Vinyl chloride	Not detected	6	2.0	ug/Kg	4/23/05	4/23/05
EPA 8260B	Xylenes	Not detected	18	0.82	ug/Kg	4/23/05	4/23/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	115	52-149		%	4/23/05	4/23/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	97.3	65-135		%	4/23/05	4/23/05
EPA 8260B	Surrogate recovery: Toluene-d8	90.6	65-135		%	4/23/05	4/23/05

J = Estimated value, below quantitation limit.

Run #: 0422C30  
Instrument: Chico  
Sequence: C050418  
Dilution Factor: 1  
Initials: LF

Printed: 5/19/05 6:23:27 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1120

Sample Collection Date: 4/22/05

ARF: 47233

APPL ID: AX18559

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	1060	100	0.54	mg/L	4/28/05	5/19/05
6010B	Calcium (Ca)	920 E	5	0.0272	mg/L	4/28/05	5/19/05
6010B	Iron (Fe)	177	0.50	0.13	mg/L	4/28/05	5/19/05
6010B	Iron (Fe)	151 E	0.1	0.0258	mg/L	4/28/05	5/19/05
6010B	Magnesium (Mg)	263	25	0.065	mg/L	4/28/05	5/19/05
6010B	Magnesium (Mg)	244 E	5	0.0129	mg/L	4/28/05	5/19/05
6010B	Potassium (K)	8.3	5	0.0995	mg/L	4/28/05	5/19/05
6010B	Sodium (Na)	59.5	25	0.56	mg/L	4/28/05	5/19/05
6010B	Sodium (Na)	56.2 E	5	0.1111	mg/L	4/28/05	5/19/05

E = The reported value exceeds linear range.

**AMENDED PAGE**

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2L-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-1121**

Sample Collection Date: 4/22/05

ARF: 47233

**APPL ID: AX18560**

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	458	25	0.14	mg/L	4/28/05	5/19/05
6010B	Calcium (Ca)	421 E	5	0.0272	mg/L	4/28/05	5/19/05
6010B	Iron (Fe)	12.1	0.1	0.0258	mg/L	4/28/05	5/19/05
6010B	Magnesium (Mg)	110	25	0.065	mg/L	4/28/05	5/19/05
6010B	Magnesium (Mg)	100 E	5	0.0129	mg/L	4/28/05	5/19/05
6010B	Potassium (K)	8.0	5	0.0995	mg/L	4/28/05	5/19/05
6010B	Sodium (Na)	44.1	5	0.1111	mg/L	4/28/05	5/19/05

E = The reported value exceeds linear range.

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2L-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1122

Sample Collection Date: 4/22/05

ARF: 47233

APPL ID: AX18561

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	441	25	0.14	mg/L	4/28/05	5/19/05
6010B	Calcium (Ca)	407 E	5	0.0272	mg/L	4/28/05	5/19/05
6010B	Iron (Fe)	12.9	0.1	0.0258	mg/L	4/28/05	5/19/05
6010B	Magnesium (Mg)	98.5	5	0.0129	mg/L	4/28/05	5/19/05
6010B	Potassium (K)	8.7	5	0.0995	mg/L	4/28/05	5/19/05
6010B	Sodium (Na)	43.6	5	0.1111	mg/L	4/28/05	5/19/05

E = The reported value exceeds linear range.

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2L-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47233

Sample ID: 86-WOPT-1123

APPL ID: AX18562

Sample Collection Date: 4/22/05

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	825	50	0.27	mg/L	5/9/05	5/18/05
6010B	Calcium (Ca)	705 E	5	0.0272	mg/L	5/9/05	5/18/05
6010B	Iron (Fe)	26.8	0.1	0.0258	mg/L	5/9/05	5/18/05
6010B	Magnesium (Mg)	169	25	0.065	mg/L	5/9/05	5/18/05
6010B	Magnesium (Mg)	153 E	5	0.0129	mg/L	5/9/05	5/18/05
6010B	Potassium (K)	13.3	5	0.0995	mg/L	5/9/05	5/18/05
6010B	Sodium (Na)	48.1	5	0.1111	mg/L	5/9/05	5/18/05

E = The reported value exceeds linear range.

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<sup>2</sup>L-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47233

Sample ID: 86-WOPT-1124

APPL ID: AX18563

Sample Collection Date: 4/22/05

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	1370	100	0.54	mg/L	4/28/05	5/19/05
6010B	Calcium (Ca)	1190 E	5	0.0272	mg/L	4/28/05	5/19/05
6010B	Iron (Fe)	1.2	0.1	0.0258	mg/L	4/28/05	5/19/05
6010B	Magnesium (Mg)	139	25	0.065	mg/L	4/28/05	5/19/05
6010B	Magnesium (Mg)	129 E	5	0.0129	mg/L	4/28/05	5/19/05
6010B	Potassium (K)	7.2	5	0.0995	mg/L	4/28/05	5/19/05
6010B	Sodium (Na)	47.7	5	0.1111	mg/L	4/28/05	5/19/05

E = The reported value exceeds linear range.

Printed: 5/21/05 2:07:38 PM

2L-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47233

**Sample ID: 86-WOPT-1125**

**APPL ID: AX18564**

Sample Collection Date: 4/22/05

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	775	50	0.27	mg/L	4/28/05	5/19/05
6010B	Calcium (Ca)	712 E	5	0.0272	mg/L	4/28/05	5/19/05
6010B	Iron (Fe)	7.2	0.1	0.0258	mg/L	4/28/05	5/19/05
6010B	Magnesium (Mg)	142	25	0.065	mg/L	4/28/05	5/19/05
6010B	Magnesium (Mg)	129 E	5	0.0129	mg/L	4/28/05	5/19/05
6010B	Potassium (K)	10.8	5	0.0995	mg/L	4/28/05	5/19/05
6010B	Sodium (Na)	46.1	5	0.1111	mg/L	4/28/05	5/19/05

E = The reported value exceeds linear range.

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield  
Sample ID: 86-WOPT-1126  
Sample Collection Date: 4/22/05

ARF: 47233  
APPL ID: AX18565

Method	Analyte	Result	PQL	MDL	Units	Preo Date	Analysis Date
6010B	Calcium (Ca)	229	25	0.14	mg/L	4/28/05	5/19/05
6010B	Calcium (Ca)	215 E	5	0.0272	mg/L	4/28/05	5/19/05
6010B	Iron (Fe)	10.5	0.1	0.0258	mg/L	4/28/05	5/19/05
6010B	Magnesium (Mg)	50.7	5	0.0129	mg/L	4/28/05	5/19/05
6010B	Potassium (K)	4.4 J	5	0.0995	mg/L	4/28/05	5/19/05
6010B	Sodium (Na)	37.6	5	0.1111	mg/L	4/28/05	5/19/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

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2L-F1-SC-MCRes/MCPQL-REG MDLs



## Metals Analysis

Tetra Tech FW, Inc  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47233

**Sample ID: 86-WOPT-1127**

**APPL ID: AX18566**

Sample Collection Date: 4/22/05

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	277	25	0.14	mg/L	4/28/05	5/19/05
6010B	Calcium (Ca)	254 E	5	0.0272	mg/L	4/28/05	5/19/05
6010B	Iron (Fe)	31.5	0.1	0.0258	mg/L	4/28/05	5/19/05
6010B	Magnesium (Mg)	64.0	5	0.0129	mg/L	4/28/05	5/19/05
6010B	Potassium (K)	7.3	5	0.0995	mg/L	4/28/05	5/19/05
6010B	Sodium (Na)	43.4	5	0.1111	mg/L	4/28/05	5/19/05

E = The reported value exceeds linear range.

Printed: 5/21/05 2:07:38 PM  
2L-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Blenkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47233

**Sample ID: 86-WOPT-603**

**APPL ID: AX18568**

Sample Collection Date: 4/22/05

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	494	25	0.14	mg/L	4/28/05	5/19/05
6010B	Calcium (Ca)	461 E	5	0.0272	mg/L	4/28/05	5/19/05
6010B	Iron (Fe)	17.8	0.1	0.0258	mg/L	4/28/05	5/19/05
6010B	Magnesium (Mg)	145	25	0.065	mg/L	4/28/05	5/19/05
6010B	Magnesium (Mg)	132 E	5	0.0129	mg/L	4/28/05	5/19/05
6010B	Potassium (K)	8.6	5	0.0995	mg/L	4/28/05	5/19/05
6010B	Sodium (Na)	48.7	5	0.1111	mg/L	4/28/05	5/19/05

E = The reported value exceeds linear range.

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47233

Sample ID: 86-WOPT-604

APPL ID: AX18569

Sample Collection Date: 4/22/05

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	801	100	0.54	mg/L	4/28/05	5/19/05
6010B	Calcium (Ca)	706 E	5	0.0272	mg/L	4/28/05	5/19/05
6010B	Iron (Fe)	639	2.0	0.52	mg/L	4/28/05	5/19/05
6010B	Iron (Fe)	473 E	0.1	0.0258	mg/L	4/28/05	5/19/05
6010B	Magnesium (Mg)	188	25	0.065	mg/L	4/28/05	5/19/05
6010B	Magnesium (Mg)	168 E	5	0.0129	mg/L	4/28/05	5/19/05
6010B	Potassium (K)	14.1	5	0.0995	mg/L	4/28/05	5/19/05
6010B	Sodium (Na)	61.7	25	0.56	mg/L	4/28/05	5/19/05
6010B	Sodium (Na)	57.1 E	5	0.1111	mg/L	4/28/05	5/19/05

E = The reported value exceeds linear range.

Printed: 5/21/05 2:07:38 PM

2L-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47233

**Sample ID: 86-WOPT-605**

**APPL ID: AX18570**

Sample Collection Date: 4/22/05

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	1050	100	0.54	mg/L	4/28/05	5/19/05
6010B	Calcium (Ca)	944 E	5	0.0272	mg/L	4/28/05	5/19/05
6010B	Iron (Fe)	140	0.50	0.13	mg/L	4/28/05	5/19/05
6010B	Iron (Fe)	122 E	0.1	0.0258	mg/L	4/28/05	5/19/05
6010B	Magnesium (Mg)	123	25	0.065	mg/L	4/28/05	5/19/05
6010B	Magnesium (Mg)	109 E	5	0.0129	mg/L	4/28/05	5/19/05
6010B	Potassium (K)	6.7	5	0.0995	mg/L	4/28/05	5/19/05
6010B	Sodium (Na)	48.4	5	0.1111	mg/L	4/28/05	5/19/05

E = The reported value exceeds linear range.

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2L-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E Deere Avenue, Ste 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: **86-WOPT-606**

Sample Collection Date: 4/22/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47233

APPL ID: **AX18571**

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	758	50	0.27	mg/L	4/28/05	5/19/05
6010B	Calcium (Ca)	684 E	5	0.0272	mg/L	4/28/05	5/19/05
6010B	Iron (Fe)	227	0.50	0.13	mg/L	4/28/05	5/19/05
6010B	Iron (Fe)	197 E	0.1	0.0258	mg/L	4/28/05	5/19/05
6010B	Magnesium (Mg)	127	25	0.065	mg/L	4/28/05	5/19/05
6010B	Magnesium (Mg)	115 E	5	0.0129	mg/L	4/28/05	5/19/05
6010B	Potassium (K)	20.2	5	0.0995	mg/L	4/28/05	5/19/05
6010B	Sodium (Na)	78.9	25	0.56	mg/L	4/28/05	5/19/05
6010B	Sodium (Na)	74.3 E	5	0.1111	mg/L	4/28/05	5/19/05

E = The reported value exceeds linear range.

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2L-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-607

Sample Collection Date: 4/22/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47233

APPL ID: AX18572

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	342	25	0.14	mg/L	4/28/05	5/19/05
6010B	Calcium (Ca)	314 E	5	0.0272	mg/L	4/28/05	5/19/05
6010B	Iron (Fe)	62.6	0.50	0.13	mg/L	4/28/05	5/19/05
6010B	Iron (Fe)	57.8 E	0.1	0.0258	mg/L	4/28/05	5/19/05
6010B	Magnesium (Mg)	90.0	5	0.0129	mg/L	4/28/05	5/19/05
6010B	Potassium (K)	7.1	5	0.0995	mg/L	4/28/05	5/19/05
6010B	Sodium (Na)	40.8	5	0.1111	mg/L	4/28/05	5/19/05

E = The reported value exceeds linear range.

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-608**

Sample Collection Date: 4/22/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47233

**APPL ID: AX18573**

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	268	25	0.14	mg/L	4/28/05	5/19/05
6010B	Calcium (Ca)	259 E	5	0.0272	mg/L	4/28/05	5/19/05
6010B	Iron (Fe)	17.0	0.1	0.0258	mg/L	4/28/05	5/19/05
6010B	Magnesium (Mg)	78.0	5	0.0129	mg/L	4/28/05	5/19/05
6010B	Potassium (K)	7.5	5	0.0995	mg/L	4/28/05	5/19/05
6010B	Sodium (Na)	41.4	5	0.1111	mg/L	4/28/05	5/19/05

E = The reported value exceeds linear range.

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-609**

Sample Collection Date: 4/22/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47233

**APPL ID: AX18574**

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	289	25	0.14	mg/L	4/28/05	5/19/05
6010B	Calcium (Ca)	286 E	5	0.0272	mg/L	4/28/05	5/19/05
6010B	Iron (Fe)	12.1	0.1	0.0258	mg/L	4/28/05	5/19/05
6010B	Magnesium (Mg)	77.9	5	0.0129	mg/L	4/28/05	5/19/05
6010B	Potassium (K)	9.5	5	0.0995	mg/L	4/28/05	5/19/05
6010B	Sodium (Na)	45.4	5	0.1111	mg/L	4/28/05	5/19/05

E = The reported value exceeds linear range.

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?L-F1-SC-MCRs/MCPQL-REG MDLs



## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn. Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1120

Sample Collection Date: 4/22/05

APPL ID: AX18559

ARF: 47233

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	39300	1000	80	ug/L	4/24/05	4/24/05
EPA 300.0	Nitrate	4160	200	15	ug/L	4/24/05	4/24/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/24/05	4/24/05
EPA 300.0	Sulfate	583000 E	1000	90	ug/L	4/24/05	4/24/05
EPA 300.0	Sulfate	497000	5000	450	ug/L	4/24/05	4/24/05
EPA 310.1	Bicarbonate	388	5	0.787	mg/L	5/3/05	5/3/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	5/3/05	5/3/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1121

Sample Collection Date: 4/22/05

APPL ID: AX18560

ARF: 47233

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	35600	1000	80	ug/L	4/24/05	4/24/05
EPA 300.0	Nitrate	7530	200	15	ug/L	4/24/05	4/24/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/24/05	4/24/05
EPA 300.0	Sulfate	545000 E	1000	90	ug/L	4/24/05	4/24/05
EPA 300.0	Sulfate	459000	5000	450	ug/L	4/24/05	4/24/05
EPA 310.1	Bicarbonate	361	5	0.787	mg/L	5/3/05	5/3/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	5/3/05	5/3/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1122

Sample Collection Date: 4/22/05

APPL ID: AX18561

ARF: 47233

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	35600	1000	80	ug/L	4/24/05	4/24/05
EPA 300.0	Nitrate	7730	200	15	ug/L	4/24/05	4/24/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/24/05	4/24/05
EPA 300.0	Sulfate	545000 E	1000	90	ug/L	4/24/05	4/24/05
EPA 300.0	Sulfate	459000	5000	450	ug/L	4/24/05	4/24/05
EPA 310.1	Bicarbonate	363	5	0.787	mg/L	5/3/05	5/3/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	5/3/05	5/3/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1123

Sample Collection Date: 4/22/05

APPL ID: AX18562

ARF: 47233

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	38500	1000	80	ug/L	4/24/05	4/24/05
EPA 300.0	Nitrate	7020	200	15	ug/L	4/24/05	4/24/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/24/05	4/24/05
EPA 300.0	Sulfate	579000 E	1000	90	ug/L	4/24/05	4/24/05
EPA 300.0	Sulfate	493000	5000	450	ug/L	4/24/05	4/24/05
EPA 310.1	Bicarbonate	367	5	0.787	mg/L	5/3/05	5/3/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	5/3/05	5/3/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1124

Sample Collection Date: 4/22/05

APPL ID: AX18563

ARF: 47233

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	40800	1000	80	ug/L	4/24/05	4/24/05
EPA 300.0	Nitrate	5890	200	15	ug/L	4/24/05	4/24/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/24/05	4/24/05
EPA 300.0	Sulfate	558000 E	1000	90	ug/L	4/24/05	4/24/05
EPA 300.0	Sulfate	474000	5000	450	ug/L	4/24/05	4/24/05
EPA 310.1	Bicarbonate	376	5	0.787	mg/L	5/3/05	5/3/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	5/3/05	5/3/05

E = The reported value exceeds linear range.

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## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1125

Sample Collection Date: 4/22/05

APPL ID: AX18564

ARF: 47233

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	40500	1000	80	ug/L	4/24/05	4/24/05
EPA 300.0	Nitrate	4580	200	15	ug/L	4/24/05	4/24/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/24/05	4/24/05
EPA 300.0	Sulfate	464000 E	1000	90	ug/L	4/24/05	4/24/05
EPA 300.0	Sulfate	388000	5000	450	ug/L	4/24/05	4/24/05
EPA 310.1	Bicarbonate	330	5	0.787	mg/L	5/4/05	5/4/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	5/4/05	5/4/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 68 Moffett Airfield

Sample ID: 86-WOPT-1126

Sample Collection Date: 4/22/05

APPL ID: AX13565

ARF: 47233

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	32300	1000	80	ug/L	4/24/05	4/24/05
EPA 300.0	Nitrate	2970	200	15	ug/L	4/24/05	4/24/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/24/05	4/24/05
EPA 300.0	Sulfate	225000 E	1000	90	ug/L	4/24/05	4/24/05
EPA 300.0	Sulfate	185000	5000	450	ug/L	4/24/05	4/24/05
EPA 310.1	Bicarbonate	240	5	0.787	mg/L	5/4/05	5/4/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	5/4/05	5/4/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1127

Sample Collection Date: 4/22/05

APPL ID: AX18566

ARF: 47233

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	30700	1000	80	ug/L	4/24/05	4/24/05
EPA 300.0	Nitrate	2650	200	15	ug/L	4/24/05	4/24/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/24/05	4/24/05
EPA 300.0	Sulfate	140000 E	1000	90	ug/L	4/24/05	4/24/05
EPA 300.0	Sulfate	119000	5000	450	ug/L	4/24/05	4/24/05
EPA 310.1	Bicarbonate	219	5	0.787	mg/L	5/4/05	5/4/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	5/4/05	5/4/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs



## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-603

Sample Collection Date: 4/22/05

APPL ID: AX18568

ARF: 47233

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	32000	1000	80	ug/L	4/24/05	4/24/05
EPA 300.0	Nitrate	7400	200	15	ug/L	4/24/05	4/24/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/24/05	4/24/05
EPA 300.0	Sulfate	443000 E	1000	90	ug/L	4/24/05	4/24/05
EPA 300.0	Sulfate	368000	5000	450	ug/L	4/24/05	4/24/05
EPA 310.1	Bicarbonate	281	5	0.787	mg/L	5/4/05	5/4/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	5/4/05	5/4/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-604

Sample Collection Date: 4/22/05

APPL ID: AX18569

ARF: 47233

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	39300	1000	80	ug/L	4/24/05	4/24/05
EPA 300.0	Nitrate	2720	200	15	ug/L	4/24/05	4/24/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/24/05	4/24/05
EPA 300.0	Sulfate	476000 E	1000	90	ug/L	4/24/05	4/24/05
EPA 300.0	Sulfate	400000	5000	450	ug/L	4/24/05	4/24/05
EPA 310.1	Bicarbonate	293	5	0.787	mg/L	5/4/05	5/4/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	5/4/05	5/4/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-605

Sample Collection Date: 4/22/05

APPL ID: AX18570

ARF: 47233

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	38700	1000	80	ug/L	4/24/05	4/24/05
EPA 300.0	Nitrate	2340	200	15	ug/L	4/24/05	4/24/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/24/05	4/24/05
EPA 300.0	Sulfate	449000 E	1000	90	ug/L	4/24/05	4/24/05
EPA 300.0	Sulfate	371000	5000	450	ug/L	4/24/05	4/24/05
EPA 310.1	Bicarbonate	289	5	0.787	mg/L	5/4/05	5/4/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	5/4/05	5/4/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-606

Sample Collection Date: 4/22/05

APPL ID: AX18571

ARF: 47233

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	36300	1000	80	ug/L	4/24/05	4/24/05
EPA 300.0	Nitrate	2370	200	15	ug/L	4/24/05	4/24/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/24/05	4/24/05
EPA 300.0	Sulfate	374000 E	1000	90	ug/L	4/24/05	4/24/05
EPA 300.0	Sulfate	310000	5000	450	ug/L	4/24/05	4/24/05
EPA 310.1	Bicarbonate	234	5	0.787	mg/L	5/4/05	5/4/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	5/4/05	5/4/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-607

Sample Collection Date: 4/22/05

APPL ID: AX18572

ARF: 47233

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	36000	1000	80	ug/L	4/24/05	4/24/05
EPA 300.0	Nitrate	5000	200	15	ug/L	4/24/05	4/24/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/24/05	4/24/05
EPA 300.0	Sulfate	365000 E	1000	90	ug/L	4/24/05	4/24/05
EPA 300.0	Sulfate	300000	5000	450	ug/L	4/24/05	4/24/05
EPA 310.1	Bicarbonate	249	5	0.787	mg/L	5/4/05	5/4/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	5/4/05	5/4/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-608

Sample Collection Date: 4/22/05

APPL ID: AX18573

ARF: 47233

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	33800	1000	80	ug/L	5/4/05	5/4/05
EPA 300.0	Nitrate	3800	200	15	ug/L	5/4/05	5/4/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	5/4/05	5/4/05
EPA 300.0	Sulfate	247000 E	1000	90	ug/L	5/4/05	5/4/05
EPA 300.0	Sulfate	205000	5000	450	ug/L	5/4/05	5/4/05
EPA 310.1	Bicarbonate	239	5	0.787	mg/L	5/4/05	5/4/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	5/4/05	5/4/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-609

Sample Collection Date: 4/22/05

APPL ID: AX18574

ARF: 47233

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	33900	1000	80	ug/L	4/24/05	4/24/05
EPA 300.0	Nitrate	3580	200	15	ug/L	4/24/05	4/24/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/24/05	4/24/05
EPA 300.0	Sulfate	238000 E	1000	90	ug/L	4/24/05	4/24/05
EPA 300.0	Sulfate	194000	5000	450	ug/L	4/24/05	4/24/05
EPA 310.1	Bicarbonate	241	5	0.787	mg/L	5/4/05	5/4/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	5/4/05	5/4/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1128

Sample Collection Date: 4/22/05

APPL ID: AX18575

ARF: 47233

Method	Analyte	Result	FQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 23.3 Percent Moisture.)							
CLP MOIST	Moisture	23.3	2.0		%	4/22/05	4/22/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs



## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 86 Moffett Airfield

**Sample ID: 86-WOPT-1129**

Sample Collection Date: 4/22/05

**APPL ID: AX18576**

ARF: 47233

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 10.9 Percent Moisture.)							
CLP MOIST	Moisture	10.9	2.0		%	4/22/05	4/22/05

Printed: 5/23/05 12:07:05 PM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-1130**

Sample Collection Date: 4/22/05

**APPL ID: AX18577**

ARF: 47233

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 23.1 Percent Moisture.)							
CLP MOIST	Moisture	23.1	2.0		%	4/22/05	4/22/05

Printed: 5/23/05 12:07:05 PM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Teira Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1131

Sample Collection Date: 4/22/05

APPL ID: AX18578

ARF: 47233

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 23.5 Percent Moisture.)							
CLP MOIST	Moisture	23.5	2.0		%	4/22/05	4/22/05

Printed: 5/23/05 12:07:05 PM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Blenkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-1132**

Sample Collection Date: 4/22/05

**APPL ID: AX18579**

ARF: 47233

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 15.3 Percent Moisture.)							
CLP MOIST	Moisture	15.3	2.0		%	4/22/05	4/22/05

Printed: 5/23/05 12:07:05 PM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1133

Sample Collection Date: 4/22/05

APPL ID: AX18580

ARF: 47233

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 20.4 Percent Moisture.)							
CLP MOIST	Moisture	20.4	2.0		%	4/22/05	4/22/05

Printed: 5/23/05 12:07:05 PM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1134

Sample Collection Date: 4/22/05

APPL ID: AX18581

ARF: 47233

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 22.4 Percent Moisture.)							
CLP MOIST	Moisture	22.4	2.0		%	4/22/05	4/22/05

Printed: 5/23/05 12:07:05 PM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-1135**

Sample Collection Date: 4/22/05

**APPL ID: AX18582**

**ARF: 47233**

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
SW846 9060	Total Organic Carbon	0.60	0.5	0.129	mg/L	5/18/05	5/18/05

Printed: 5/23/05 12:07:05 PM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-610

Sample Collection Date: 4/22/05

APPL ID: AX18583

ARF: 47233

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 17.7 Percent Moisture.)							
CLP MOIST	Moisture	17.7	2.0		%	4/22/05	4/22/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs



## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-611**

Sample Collection Date: 4/22/05

**APPL ID: AX18584**

ARF: 47233

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 26.7 Percent Moisture.)							
CLP MOIST	Moisture	26.7	2.0		%	4/22/05	4/22/05

Printed: 5/23/05 12:07:05 PM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-612**

Sample Collection Date: 4/22/05

**APPL ID: AX18585**

ARF: 47233

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
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(Concentrations and Limits have been adjusted to reflect 18.1 Percent Moisture.)

CLP MOIST	Moisture	18.1	2.0		%	4/22/05	4/22/05
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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-613**

Sample Collection Date: 4/22/05

**APPL ID: AX18586**

ARF: 47233

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 23.1 Percent Moisture.)							
CLP MOIST	Moisture	23.1	2.0		%	4/22/05	4/22/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-614

Sample Collection Date: 4/22/05

APPL ID: AX18587

ARF: 47233

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 23.1 Percent Moisture.)							
CLP MOIST	Moisture	23.1	2.0		%	4/22/05	4/22/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Ste 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-615**

Sample Collection Date: 4/22/05

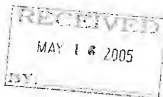
**APPL ID: AX18588**

ARF: 47233

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 17.3 Percent Moisture.)							
CLP MOIST	Moisture	17.3	2.0		%	4/22/05	4/22/05

Printed: 5/23/05 12:07:05 PM

APPL-F1-SC-MCRes/MCPQL-REG MDLs



May 12, 2005

Service Request No: K2503021

Robert Wise  
APPL, Inc.  
4203 W. Swift Avenue  
Fresno, CA 93722

**RE: 47233**

Dear Robert:

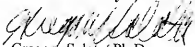
Enclosed are the results of the sample(s) submitted to our laboratory on April 26, 2005. For your reference, these analyses have been assigned our service request number K2503021.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAC standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3376.

Respectfully submitted,

**Columbia Analytical Services, Inc.**

  
Gregory Salata, Ph.D.  
Project Chemist

GS/jeb

Page 1 of 15

COLUMBIA ANALYTICAL SERVICES, INC.

Client: Agriculture and Priority Pollutants Labs  
Project: 47233  
Sample Matrix: Soil

Service Request No.: K2503021  
Date Received: 04/26/05

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier III validation deliverables including summary forms and all of the associated raw data for each of the analyses. When appropriate to the method, method blank results have been reported with each analytical test.

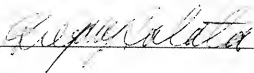
Sample Receipt

Thirteen soil samples were received for analysis at Columbia Analytical Services on 04/26/05. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

General Chemistry Parameters

No anomalies associated with the analysis of these samples were observed.

Approved by



Date

5/12/05

00005

## COLUMBIA ANALYTICAL SERVICES, INC.

## Analytical Report

Client : Agriculture & Priority Pollutants Labs  
 Project Name : NA  
 Project Number : 47233  
 Sample Matrix : SOIL

Service Request : K2503021  
 Date Collected : 04/22/05  
 Date Received : 04/26/05

## Carbon, Total Organic

Analysis Method : Walkley-Black  
 Test Notes :

Units : mg Kg (ppm)  
 Basis : Dry

Sample Name	Lab Code	MRI	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
86-WOPT-1128	K2503021-001	2000	900	1	05/09/05	2990	
86-WOPT-1129	K2503021-002	2000	900	1	05/09/05	ND	
86-WOPT-1130	K2503021-003	2000	900	1	05/09/05	ND	
86-WOPT-1131	K2503021-004	2000	900	1	05/09/05	ND	
86-WOPT-1132	K2503021-005	2000	900	1	05/09/05	ND	
86-WOPT-1133	K2503021-006	2000	900	1	05/09/05	1190	J
86-WOPT-1134	K2503021-007	2000	900	1	05/09/05	2330	
86-WOPT-610	K2503021-008	2000	900	1	05/09/05	1600	J
86-WOPT-611	K2503021-009	2000	900	1	05/09/05	3460	
86-WOPT-612	K2503021-010	2000	900	1	05/09/05	2260	
86-WOPT-613	K2503021-011	2000	900	1	05/09/05	2170	
86-WOPT-614	K2503021-012	2000	900	1	05/09/05	1320	J
86-WOPT-615	K2503021-013	2000	900	1	05/09/05	1290	J
Method Blank	K2503021-MB	2000	900	1	05/09/05	ND	

300010



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Air Field, Building 88, CTO 86  
**Collection Date:** April 22, 2005  
**LDC Report Date:** May 26, 2005  
**Matrix:** Water  
**Parameters:** Volatiles  
**Validation Level:** EPA Level III & IV  
**Laboratory:** APPL, Inc.

**Sample Delivery Group (SDG):** 47233

**Sample Identification**

86-WOPT-1119	86-WOPT-605
86-WOPT-1120**	86-WOPT-605DL
86-WOPT-1120DL**	86-WOPT-606
86-WOPT-1121	86-WOPT-607**
86-WOPT-1121DL	86-WOPT-608
86-WOPT-1122	86-WOPT-608DL
86-WOPT-1122DL	86-WOPT-609
86-WOPT-1123	86-WOPT-609DL
86-WOPT-1123DL	86-WOPT-1123MS
86-WOPT-1124**	86-WOPT-1123MSD
86-WOPT-1124DL**	
86-WOPT-1125	
86-WOPT-1125DL	
86-WOPT-1126	
86-WOPT-1127	
86-WOPT-602	
86-WOPT-603**	
86-WOPT-603DL**	
86-WOPT-604	
86-WOPT-604DL	

\*\*Indicates sample underwent EPA Level IV review

## introduction

This data review covers 30 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Contract Laboratory Program Statement of Work (SOW) OLM04.2 for Volatiles.

This review follows USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999); the following subsections correlate to the above guidelines.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

### I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

### II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

### III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 30.0% for all compounds with the following exceptions:

Date	Compound	%RSD	Associated Samples	Flag	A or P
4/21/05	2-Hexanone	32	86-WOPT-1119 86-WOPT-1120** 86-WOPT-1121 86-WOPT-1122 86-WOPT-1123 86-WOPT-1124** 86-WOPT-1125 86-WOPT-1126 86-WOPT-1127 86-WOPT-602 86-WOPT-603** 86-WOPT-604 86-WOPT-605 86-WOPT-606 86-WOPT-607** 86-WOPT-608 86-WOPT-609 86-WOPT-1123MS 86-WOPT-1123MSD 050422ABLK-1WN 050422DDLK-1WN	J (all detects) UJ (all non-detects)	A

Average relative response factors (RRF) for all volatile target compounds and system monitoring compounds were within validation criteria.

### IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 25.0% with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
4/22/05	Bromomethane	26	86-WOPT-1119	J (all detects) UJ (all non-detects)	A
	Chloroethane	30	86-WOPT-1120**		
	Acetone	43	86-WOPT-1121		
	Carbon tetrachloride	27	86-WOPT-1122		
	Bromoform	34	86-WOPT-1124**		
	m,p-Xylenes	28	86-WOPT-1125		
	o-Xylene	26	86-WOPT-1126		
	Styrene	32	86-WOPT-1127		
	Chlorobenzene	28	86-WOPT-602		
	Ethylbenzene	31	86-WOPT-603**		
			86-WOPT-604 86-WOPT-605 050422ABLK-1WN		
4/23/05	Chloroethane	39	86-WOPT-1123	J (all detects) UJ (all non-detects)	A
			86-WOPT-606		
			86-WOPT-607**		
			86-WOPT-608		
			86-WOPT-609		
			86-WOPT-1123MS		
			86-WOPT-1123MSD		
			050422BBLK-1WN		

All of the continuing calibration RRF values were within validation criteria.

#### V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

#### VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the SOW. All surrogate recoveries (%R) were within QC limits.

#### VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were not within QC limits. Since the sample concentration was greater than the spiked concentration, no data were qualified.

### VIII. Laboratory Control Samples (LCS)

Although laboratory control samples were not required by the method, laboratory control samples were reported by the laboratory. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

LCS ID (Associated Samples)	Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Flag	A or P
050422AN	1,1-Dichloroethene	147 (75-145)	-	-	J (all detects)	P
86-WOPT-1119	Benzene	144 (75-125)	-	-	J (all detects)	
86-WOPT-1120**	Chlorobenzene	139 (75-125)	-	-	J (all detects)	
86-WOPT-1121	Toluene	139 (74-125)	-	-	J (all detects)	
86-WOPT-1122	Trichloroethene	145 (75-125)	-	-	J (all detects)	
86-WOPT-1124**					J (all detects)	
86-WOPT-1125						
86 WOPT 1126						
86-WOPT-1127						
86-WOPT-602						
86-WOPT-603**						
86-WOPT-604						
86-WOPT-605						
050422ABLK-1WN)						

### IX. Regional Quality Assurance and Quality Control

Not applicable.

### X. Internal Standards

All internal standard areas and retention times were within QC limits.

### XI. Target Compound Identifications

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

### XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
86-WOPT-1120** 86-WOPT-604 86-WOPT-605	1,1,2-Dichloroethene	Sample result exceeded calibration range	Reported result should be within calibration range	J (all detects)	A

Sample	Compound	Finding	Criteria	Flag	A or P
86-WOPT-1121 86-WOPT-1122 86-WOPT-1123 86-WOPT-1124**	Trichloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	A
86-WOPT-1125	cis-1,2-Dichloroethene Trichloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects)	A
86-WOPT-603**	cis-1,2-Dichloroethene Tetrachloroethene Trichloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects) J (all detects)	A
86-WOPT-608 86-WOPT-609	1,1,2-Trichloro-1,2,2-trifluoroethane Tetrachloroethene Trichloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects) J (all detects)	A

Raw data were not evaluated for the samples reviewed by Level III criteria.

### XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

### XIV. System Performance

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

### XV. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### XVI. Field Duplicates

Samples 86-WOPT-1121 and 86-WOPT-1122, samples 86-WOPT-1121DL and 86-WOPT-1122DL, samples 86-WOPT-608 and 86-WOPT-609, and samples 86-WOPT-608DL and 86-WOPT-609DL were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	86-WOPT-1121	86-WOPT-1122	
1,1,1-Trichloroethane	2.4	2.7	12

Compound	Concentration (ug/L)		RPD
	86-WOPT-1121	86-WOPT-1122	
1,1,2-Trichloro-1,2,2-trifluoroethane	2.5	2.9	15
1,1-Dichloroethane	3.7	4.0	8
1,1-Dichloroethene	4.4	5.1	15
Chloroform	0.24	0.27	12
cis-1,2-Dichloroethene	52	58	11
Tetrachloroethene	0.28	0.30	7
trans-1,2-Dichloroethene	0.88	0.92	4
Trichloroethene	210	230	9
Vinyl chloride	0.59	0.63	7

Compound	Concentration (ug/L)		RPD
	86-WOPT-1121DL	86-WOPT-1122DL	
Trichloroethene	270	270	0

Compound	Concentration (ug/L)		RPD
	86-WOPT-808	86-WOPT-609	
1,1,1-Trichloroethane	0.78	0.80	3
1,1,2-Trichloro-1,2,2-trifluoroethane	70	70	0
1,1,2-Trichloroethane	0.24	0.5U	Not calculable
1,1-Dichloroethane	5.3	5.1	4
1,1-Dichloroethene	27	20	4
Chloroform	0.27	0.27	0

Compound	Concentration (ug/L)		RPD
	86-WOPT-608	86-WOPT-609	
cis-1,2-Dichloroethene	53	52	2
Tetrachloroethene	130	130	0
trans-1,2-Dichloroethene	0.56	0.44	24
Trichloroethene	820	870	6

Compound	Concentration (ug/L)		RPD
	86-WOPT-608DL	86-WOPT-608DL	
1,1,2-Trichloro-1,2,2-trifluoroethane	52	48	8
Tetrachloroethene	82	78	5
Trichloroethene	1400	1200	15

#### XVII. Field Blanks

Samples 86-WOPT-1119 and 86-WOPT-602 were identified as trip blanks. No volatile contaminants were found in these blanks.



Moffett Air Field, Building 88, CTO 86  
Volatiles - Data Qualification Summary - SDG 47233

SDG	Sample	Compound	Flag	A or P	Reason
47233	86-WOPT-1119 86-WOPT-1120** 86-WOPT-1121 86-WOPT-1122 86-WOPT-1123 86-WOPT-1124** 86-WOPT-1125 86-WOPT-1126 86-WOPT-1127 86-WOPT-602 86-WOPT-603** 86-WOPT-604 86-WOPT-605 86-WOPT-606 86-WOPT-607** 86-WOPT-608 86-WOPT-609	2-Hexanone	J (all detects) UJ (all non-detects)	A	Initial calibration (%RSD)
47233	86-WOPT-1119 86-WOPT-1120** 86-WOPT-1121 86-WOPT-1122 86-WOPT-1124** 86-WOPT-1125 86-WOPT-1126 86-WOPT-1127 86-WOPT-602 86-WOPT-603** 86-WOPT-604 86-WOPT-605	Bromomethane Chloroethane Acetone Carbon tetrachloride Bromoform m,p-Xylenes o-Xylene Styrene Chlorobenzene Ethylbenzene	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
47233	86-WOPT-1123 86-WOPT-606 86-WOPT-607** 86-WOPT-608 86-WOPT-609	Chloroethane	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
47233	86-WOPT-1119 86-WOPT-1120** 86-WOPT-1121 86-WOPT-1122 86-WOPT-1124** 86-WOPT-1125 86-WOPT-1126 86-WOPT-1127 86-WOPT-602 86-WOPT-603** 86-WOPT-604 86-WOPT-605	1,1-Dichloroethane Benzene Chlorobenzene Toluene Trichloroethane	J (all detects) J (all detects) J (all detects) J (all detects) J (all detects)	P	Laboratory control samples (%R)
47233	86-WOPT-1120** 86-WOPT-604 86-WOPT-605	cis-1,2-Dichloroethane	J (all detects)	A	Compound quantitation and CRQLs

SDG	Sample	Compound	Flag	A or P	Reason
47233	86-WOPT-1121 86-WOPT-1122 86-WOPT-1123 86-WOPT-1124**	Trichloroethene	J (all detects)	A	Compound quantitation and CRQLs
47233	86-WOPT-1125	cis-1,2-Dichloroethene Trichloroethene	J (all detects) J (all detects)	A	Compound quantitation and CRQLs
47233	86-WOPT-603**	cis-1,2-Dichloroethene Tetrachloroethene Trichloroethene	J (all detects) J (all detects) J (all detects)	A	Compound quantitation and CRQLs
47233	86-WOPT-608 86-WOPT-609	1,1,2-Trichloro-1,2,2-trifluoroethane Tetrachloroethene Trichloroethene	J (all detects) J (all detects) J (all detects)	A	Compound quantitation and CRQLs

**Moffett Air Field, Building 88, CTO 86**

**Volatiles - Laboratory Blank Data Qualification Summary - SDG 47233**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Air Field, Building 88, CTO 86  
**Collection Date:** April 22, 2005  
**LDC Report Date:** May 26, 2005  
**Matrix:** Soil/Water  
**Parameters:** Volatiles  
**Validation Level:** EPA Level III & IV  
**Laboratory:** APPL, Inc.

**Sample Delivery Group (SDG):** 47233

**Sample Identification**

86-WOPT-1128  
86-WOPT-1129  
86-WOPT-1130  
86-WOPT-1131  
86-WOPT-1132\*\*  
86-WOPT-1133  
86-WOPT-1134\*\*  
86-WOPT-1135  
86-WOPT-610\*\*  
86-WOPT-611  
86-WOPT-612  
86-WOPT-613  
86-WOPT-614\*\*  
86-WOPT-615

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 13 soil samples and one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

### I. Technical Holding Times

All technical holding time requirements were met

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

### II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

### III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 15.0% for each individual compound and less than or equal to 30.0% for calibration check compounds (CCCs) with the following exceptions:

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination ( $r^2$ ) was greater than or equal to 0.990.

Average relative response factors (RRF) for all system performance check compounds (SPCCs) were within method and validation criteria.

### IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 20.0% for all compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
4/22/05	Acetone	26	86-WOPT-1128 86-WOPT-1130 86-WOPT-1131 86-WOPT-1132** 86-WOPT-1133 86-WOPT-1134** 86-WOPT-610** 86-WOPT-611 86-WOPT-612 86-WOPT-613 86-WOPT-614** 86-WOPT-615 050422BBLK-1SC	J (all detects) UJ (all non-detects)	A

Date	Compound	%D	Associated Samples	Flag	A or P
4/25/05	Acetone	25	86-WOPT-1135 050425ABLK-TWS	J (all detects) UJ (all non-detects)	A

All of the continuing calibration RRF values for all system performance check compounds (SPCCs) were within method and validation criteria.

#### V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

#### VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

#### VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

#### VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

LCS ID (Associated Samples)	Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Flag	A or P
050426AC (86-WOPT-1129 050426ABLK-1SC)	Chlorobenzene	151 (85-135)	-	-	J (all detects)	P

#### IX. Regional Quality Assurance and Quality Control

Not applicable.

#### X. Internal Standards

All internal standard areas and retention times were within QC limits with the following exceptions:

Sample	Internal Standards	Area (Limits)	Compound	Flag	A or P
66-WOPT-610**	1,4-Dichlorobenzene-d4	114120 (117921-171684)	4-Methyl-2-pentanone 1,1,2,2-Tetrachloroethane	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	P
86-WOPT-611	1,4-Dichlorobenzene-d4	95058 (117921-471684)	4-Methyl-2-pentanone 1,1,2,2-Tetrachloroethane	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	P

#### XI. Target Compound Identifications

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

#### XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

#### XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

#### XIV. System Performance

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

#### XV. Overall Assessment

Data flags are summarized at the end of this report if data has been qualified.

#### XVI. Field Duplicates

No field duplicates were identified in this SDG.

#### XVII. Field Blanks

Sample 86-WOPT-1135 was identified as an equipment rinsate. No volatile contaminants were found in this blank.

**Moffett Air Field, Building 88, CTO 86**  
**Volatiles - Data Qualification Summary - SDG 47233**

SDG	Sample	Compound	Flag	A or P	Reason
47233	86-WOPT-1128 86-WOPT-1130 86-WOPT-1131 86-WOPT-1132** 86-WOPT-1133 86-WOPT-1134** 86-WOPT-1135 86-WOPT-610** 86-WOPT-611 86-WOPT-612 86-WOPT-613 86-WOPT-614** 86-WOPT-615	Acetone	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
47233	86-WOPT-1129	Chlorobenzene	J (all detects)	P	Laboratory control samples (%U)
47233	86-WOPT-610** 86-WOPT-611	4-Methyl-2-pentanone  1,1,2,2-Tetrachloroethane	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	P	Internal standards (area)

**Moffett Air Field, Building 88, CTO 86**  
**Volatiles - Laboratory Blank Data Qualification Summary - SDG 47233**

No Sample Data Qualified in this SDG



# **Laboratory Data Consultants, Inc.** **Data Validation Report**

**Project/Site Name:** Moffett Air Field, Building 88, CTO 86

**Collection Date:** April 22, 2005

**LDC Report Date:** May 26, 2005

**Matrix:** Water

**Parameters:** Metals

**Validation Level:** EPA Level III & IV

**Laboratory:** APPL, Inc.

**Sample Delivery Group (SDG):** 47233

## **Sample Identification**

86-WOPT-1120**	86-WOPT-1125DL
86-WOPT-1121	86-WOPT-1126DL
86-WOPT-1122	86-WOPT-1127DL
86-WOPT-1123	86-WOPT-603DL**
86-WOPT-1124**	86-WOPT-604DL
86-WOPT-1125	86-WOPT-605DL
86-WOPT-1126	86-WOPT-606DL
86-WOPT-1127	86-WOPT-607DL**
86-WOPT-603**	86-WOPT-608DL
86-WOPT-604	86-WOPT-609DL
86-WOPT-605	86-WOPT-1123MS
86-WOPT-606	86-WOPT-1123MSD
86-WOPT-607**	
86-WOPT-608	
86-WOPT-609	
86-WOPT-1120DL**	
86-WOPT-1121DL	
86-WOPT-1122DL	
86-WOPT-1123DL	
86-WOPT-1124DL**	

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 32 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 6010B for Metals. The metals analyzed were Calcium, Iron, Magnesium, Potassium, and Sodium.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

### I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

### II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

### III. Blanks

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Calcium Sodium	0.089 mg/L 0.25 mg/L	86-WOPT-1120** 86-WOPT-1121 86-WOPT-1122 86-WOPT-1124** 86-WOPT-1125 86-WOPT-1126 86-WOPT-1127 86-WOPT-603** 86-WOPT-604 86-WOPT-605 86-WOPT-606 86-WOPT-607** 86-WOPT-608 86-WOPT-609 86-WOPT-1120DL** 86-WOPT-1121DL 86-WOPT-1122DL 86-WOPT-1124DL** 86-WOPT-1125DL 86-WOPT-1126DL 86-WOPT-1127DL 86-WOPT-603DL** 86-WOPT-604DL 86-WOPT-605DL 86-WOPT-606DL 86-WOPT-607DL** 86-WOPT-608DL 86-WOPT-609DL

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Potassium	0.12 mg/L	86-WOPT-1123 86-WOPT-1123DL

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks.

#### IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

#### V. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
86-WOPT-1123MS/MSD (86-WOPT-1120** 86-WOPT-1121 86-WOPT-1122 86-WOPT-1123 86-WOPT-1124** 86-WOPT-1125 86-WOPT-1126 86-WOPT-1127 86-WOPT-603** 86-WOPT-604 86-WOPT-605 86-WOPT-606 86-WOPT-607** 86-WOPT-608 86-WOPT-609 86-WOPT-1120DL** 86-WOPT-604DL 86-WOPT-605DL 86-WOPT-606DL 86-WOPT-607DL**)	Iron	-	-	24 (≤20)	J (all detects) UJ (all non-detects)	A

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
86-WOPT-1123MS/MSD (86-WOPT-1120** 86-WOPT-1121 86-WOPT-1122 86-WOPT-1123 86-WOPT-1124** 86-WOPT-1125 86-WOPT-1126 86-WOPT-1127 86-WOPT-603** 86-WOPT-604 86-WOPT-605 86-WOPT-606 86-WOPT-607** 86-WOPT-608 86-WOPT-609)	Potassium	124 (80-120)	160 (80-120)	-	J (all detects)	A
86-WOPT-1123MS/MSD (86-WOPT-1120** 86-WOPT-1121 86-WOPT-1122 86-WOPT-1123 86-WOPT-1124** 86-WOPT-1125 86-WOPT-1126 86-WOPT-1127 86-WOPT-603** 86-WOPT-604 86-WOPT-605 86-WOPT-606 86-WOPT-607** 86-WOPT-608 86-WOPT-609 86-WOPT-1120DL** 86-WOPT-604DL 86-WOPT-606DL)	Sodium	-	125 (80-120)	-	J (all detects)	A

## VI. Duplicate Sample Analysis

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

## VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Internal Standards

ICP-MS was not utilized in this SDG.

## IX. Furnace Atomic Absorption QC

Graphite furnace atomic absorption was not utilized in this SDG.

## X. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met.

## XI. Sample Result Verification

All sample result verification met validation criteria with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
86-WOPT-1120** 86-WOPT-604 ✓ 86-WOPT-606 ✓	Calcium Iron Magnesium Sodium	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects) J (all detects) J (all detects)	A
86-WOPT-1121 ✓ 86-WOPT-1123 ✓ 86-WOPT-1124** 86-WOPT-1125 ✓ 86-WOPT-603** ✓	Calcium Magnesium	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects)	A
86-WOPT-1122 ✓ 86-WOPT-1126 ✓ 86-WOPT-1127 ✓ 86-WOPT-608 ✓ 86-WOPT-609 ✓	Calcium	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	A
86-WOPT-605 ✓	Calcium Iron Magnesium	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects) J (all detects)	A
86-WOPT-607** ✓	Calcium Iron	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects)	A

Raw data were not evaluated for samples reviewed by Level III criteria.

## XII. Overall Assessment of Data

Data flags have been summarized at the end of this report.

### XIII. Field Duplicates

Samples 86-WOPT-1121 and 86-WOPT-1122, samples 86-WOPT-1121DL and 86-WOPT-1122, samples 86-WOPT-1121DL and 86-WOPT-1122DL, samples 86-WOPT-608 and 86-WOPT-609, and samples 86-WOPT-608DL and 86-WOPT-609DL were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:

Compound	Concentration (mg/L)		RPD
	86-WOPT-1121	86-WOPT-1122	
Calcium	421	407	3
Iron	12.1	12.9	6
Magnesium	100	98.5	2
Potassium	8.0	8.7	6
Sodium	44.1	43.6	1

Compound	Concentration (mg/L)		RPD
	86-WOPT-1121DL	86-WOPT-1122DL	
Calcium	458	441	4

Compound	Concentration (mg/L)		RPD
	86-WOPT-1121DL	86-WOPT-1122	
Magnesium	110	98.5	11

Compound	Concentration (mg/L)		RPD
	86-WOPT-608	86-WOPT-609	
Calcium	259	286	10
Iron	17.0	12.1	34
Magnesium	78.0	77.9	0
Potassium	7.5	9.5	24

Compound	Concentration (mg/L)		RPD
	86-WOPT-808	86-WOPT-809	
Sodium	41.4	45.4	9

Compound	Concentration (mg/L)		RPD
	86-WOPT-808DL	86-WOPT-809DL	
Calcium	268	289	8

#### XIV. Field Blanks

No field blanks were identified in this SDG.



Moffett Air Field, Building 88, CTO 86  
Metals - Data Qualification Summary - SDG 47233

SDG	Sample	Analyte	Flag	A or P	Reason
47233	86-WOPT-1120** 86-WOPT-1121 86-WOPT-1122 86-WOPT-1123 86-WOPT-1124** 86-WOPT-1125 86-WOPT-1126 86-WOPT-1127 86-WOPT-603** 86-WOPT-604 86-WOPT-605 86-WOPT-606 86-WOPT-607** 86-WOPT-608 86-WOPT-609 86-WOPT-1120DL** 86-WOPT-604DL 86-WOPT-606DL 86-WOPT-606DL 86-WOPT-607DL**	Iron	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicates (RPD)
47233	86-WOPT-1120** 86-WOPT-1121 86-WOPT-1122 86-WOPT-1123 86-WOPT-1124** 86-WOPT-1125 86-WOPT-1126 86-WOPT-1127 86-WOPT-603** 86-WOPT-604 86-WOPT-605 86-WOPT-606 86-WOPT-607** 86-WOPT-608 86-WOPT-609	Potassium	J (all detects)	A	Matrix spike/Matrix spike duplicates (76%)
47233	86-WOPT-1120** 86-WOPT-1121 86-WOPT-1122 86-WOPT-1123 86-WOPT-1124** 86-WOPT-1125 86-WOPT-1126 86-WOPT-1127 86-WOPT-603** 86-WOPT-604 86-WOPT-605 86-WOPT-606 86-WOPT-607** 86-WOPT-608 86-WOPT-609 86-WOPT-1120DL** 86-WOPT-604DL 86-WOPT-606DL	Sodium	J (all detects)	A	Matrix spike/Matrix spike duplicates (76%)

SDG	Sample	Analyte	Flag	A or P	Reason
47233	86-WOPT-1120** 86-WOPT-604 86-WOPT-606	Calcium Iron Magnesium Sodium	J (all detects) J (all detects) J (all detects) J (all detects)	A	Sample result verification
47233	86-WOPT-1121 86-WOPT-1123 86-WOPT-1124** 86-WOPT-1125 86-WOPT-603**	Calcium Magnesium	J (all detects) J (all detects)	A	Sample result verification
47233	86-WOPT-1122 86-WOPT-1126 86-WOPT-1127 86-WOPT-608 86-WOPT-609	Calcium	J (all detects)	A	Sample result verification
47233	86-WOPT-605	Calcium Iron Magnesium	J (all detects) J (all detects) J (all detects)	A	Sample result verification
47233	86-WOPT-607**	Calcium Iron	J (all detects) J (all detects)	A	Sample result verification

**Moffett Air Field, Building 88, CTO 86**  
**Metals - Laboratory Blank Data Qualification Summary - SDG 47233**

No Sample Data Qualified in this SDG

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Moffett Air Field, Building 88, CTO 86

**Collection Date:** April 22, 2005

**LDC Report Date:** May 31, 2005

**Matrix:** Soil/Water

**Parameters:** Wet Chemistry

**Validation Level:** EPA Level III & IV

**Laboratory:** APPL, Inc./Columbia Analytical Services, Inc.

**Sample Delivery Group (SDG):** 47233/K2503021

### Sample Identification

86-WOPT-1120**	86-WOPT-1133	86-WOPT-606DL
86-WOPT-1121	86-WOPT-1134**	86-WOPT-607DL**
86-WOPT-1122	86-WOPT-1135	86-WOPT-608DL
86-WOPT-1123	86-WOPT-610**	86-WOPT-609DL
86-WOPT-1124**	86-WOPT-611	86-WOPT-1123MS
86-WOPT-1125	86-WOPT-612	86-WOPT-1123MSD
86-WOPT-1126	86-WOPT-613	86-WOPT-1127MS
86-WOPT-1127	86-WOPT-614**	86-WOPT-1128DUP
86-WOPT-603**	86-WOPT-615	
86-WOPT-604	86-WOPT-1120DL**	
86-WOPT-605	86-WOPT-1121DL	
86-WOPT-606	86-WOPT-1122DL	
86-WOPT-607**	86-WOPT-1123DL	
86-WOPT-608	86-WOPT-1124DL**	
86-WOPT-609	86-WOPT-1125DL	
86-WOPT-1128	86-WOPT-1126DL	
86-WOPT-1129	86-WOPT-1127DL	
86-WOPT-1130	86-WOPT-603DL**	
86-WOPT-1131	86-WOPT-604DL	
86-WOPT-1132**	86-WOPT-605DL	

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 14 soil samples and 34 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 300.0 for Chloride, Nitrate, Nitrite, and Sulfate, EPA Method 310.1 for Carbonate and Bicarbonate, and Walkley-Black method and EPA SW 846 Method 9060 for Total Organic Carbon.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section IX.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
  - J Indicates an estimated value.
  - R Quality control indicates the data is not usable.
  - N Presumptive evidence of presence of the constituent.
  - UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
  - A Indicates the finding is based upon technical validation criteria.
  - P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding. therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met with the following exceptions:

Sample	Analyte	Total Time From Sample Collection Until Analysis	Required Holding Time From Sample Collection Until Analysis	Flag	A or P
86-WOPT-608	Nitrate	12 days	48 hours	J (all detects)	A
	Nitrite	12 days	48 hours	R (all non-detects) J (all detects) R (all non-detects)	
86-WOPT-1123MS 86-WOPT-1123MSD	Nitrate	4 days	48 hours	J (all detects)	A
	Nitrite	4 days	48 hours	UJ (all non-detects) J (all detects) UJ (all non-detects)	

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

### a. Initial Calibration

All criteria for the initial calibration of each method were met.

### b. Calibration Verification

Calibration verification frequency and analysis criteria were met for each method when applicable.

## III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the method blanks with the following exceptions:

Method Blank ID	Analyte	Concentration	Associated Samples
ICB/CCB	Total organic carbon	0.323 mg/L	86-WOPT-1135
ICB/CCB	Chloride	2.44 mg/L	86-WOPT-1120** 86-WOPT-1121 86-WOPT-1122 86-WOPT-1123 86-WOPT-1124** 86-WOPT-1125

Method Blank ID	Analyte	Concentration	Associated Samples
ICB,CCB	Chloride	2.43 mg/L	86-WOPT-1126 86-WOPT-1127 86-WOPT-603** 86-WOPT-604 86-WOPT-605 86-WOPT-606 86-WOPT-607** 86-WOPT-609

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater ( >5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
86-WOPT-1135	Total organic carbon	0.60 mg/L	0.60U mg/L

#### IV. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPO (Limits)	Flag	A or P
86-WOPT-1123MS-MSD (86-WOPT-1120)** 86-WOPT-1121 86-WOPT-1122 86-WOPT-1123 86-WOPT-1124** 86-WOPT-1125 86-WOPT-1126 86-WOPT-1127 86-WOPT-603** 86-WOPT-604 86-WOPT-605 86-WOPT-606 86-WOPT-607** 86-WOPT-608 86-WOPT-609 86-WOPT-1120DL** 86-WOPT-1121DL 86-WOPT-1122DL 86-WOPT-1123DL 86-WOPT-1124DL** 86-WOPT-1125DL 86-WOPT-1126DL 86-WOPT-1127DL 86-WOPT-603DL** 86-WOPT-604DL 86-WOPT-605DL 86-WOPT-606DL 86-WOPT-607DL** 86-WOPT-608DL 86-WOPT-609DL	Sulfate	73.0 (80-120)	73.0 (80-120)	-	J (all detects) UJ (all non-detects)	A

## V. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## VI. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VII. Sample Result Verification

All sample result verification met validation criteria with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
86-WOPT-1120** 86-WOPT-1121 86-WOPT-1122 86-WOPT-1123 86-WOPT-1124** 86-WOPT-1125 86-WOPT-1126 86-WOPT-1127 86-WOPT-600** 86-WOPT-604 86-WOPT-605 86-WOPT-606 86-WOPT-607** 86-WOPT-608 86-WOPT-609	Sulfate	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	A

Raw data were not evaluated for the samples reviewed by Level III criteria.

#### VIII. Overall Assessment of Data

Data flags are summarized at the end of this report.

#### IX. Field Duplicates

Samples 86-WOPT-1121 and 86-WOPT-1122, samples 86-WOPT-1121DL and 86-WOPT-1122DL, samples 86-WOPT-608 and 86-WOPT-609, and samples 86-WOPT-608DL and 86-WOPT-609DL were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration (ug/L)		RPD
	86-WOPT-1121	86-WOPT-1122	
Chloride	35600	35600	0
Nitrate as N	7530	7730	3
Sulfate	545000	545000	0

Analyte	Concentration (mg/L)		RPD
	86-WOPT-1121	86-WOPT-1122	
Bicarbonate	361	363	1



Analyte	Concentration (ug/L)		RPD
	86-WOPT-1121DL	86-WOPT-1122DL	
Sulfate	459000	459000	0

Analyte	Concentration (ug/L)		RPD
	86-WOPT-608	86-WOPT-609	
Chloride	33800	33900	0
Nitrate as N	3800	3580	6
Sulfate	247000	238000	4

Analyte	Concentration (mg/L)		RPD
	86-WOPT-608	86-WOPT-609	
Bicarbonate	239	241	1

Analyte	Concentration (ug/L)		RPD
	86-WOPT-608DL	86-WOPT-609DL	
Sulfate	205000	194000	6

## X. Field Blanks

Sample 86-WOPT-1135 was identified as an equipment rinsate. No contaminant concentrations were found in this blank with the following exceptions:

Equipment Rinsate ID	Analyte	Concentration (mg/L)
86-WOPT-1135	Total organic carbon	0.60

Moffett Air Field, Building 88, CTO 86  
Wet Chemistry - Data Qualification Summary - SDG 47233/K2503021

SDG	Sample	Analyte	Flag	A or P	Reason
47233/ K2503021	86-WOPT-608	Nitrate  Nitrite	J (all detects) R (all non-detects) J (all detects) R (all non-detects)	A	Technical holding times
47233/ K2503021	86-WOPT-1120** 86-WOPT-1121 86-WOPT-1122 86-WOPT-1124** 86-WOPT-1125 86-WOPT-1126 86-WOPT-1127 86-WOPT-603** 86-WOPT-604 86-WOPT-605 86-WOPT-606 86-WOPT-607** 86-WOPT-608 86-WOPT-609 86-WOPT-1120DL** 86-WOPT-1121DL 86-WOPT-1122DL 86-WOPT-1123DL 86-WOPT-1124DL** 86-WOPT-1125DL 86-WOPT-1126DL 86-WOPT-1127DL 86-WOPT-603DL** 86-WOPT-604DL 86-WOPT-605DL 86-WOPT-606DL 86-WOPT-607DL** 86-WOPT-608DL 86-WOPT-609DL	Sulfate	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicates (%R)
47233/ K2503021	86-WOPT-1120** 86-WOPT-1121 86-WOPT-1122 86-WOPT-1123 86-WOPT-1124** 86-WOPT-1125 86-WOPT-1126 86-WOPT-1127 86-WOPT-603** 86-WOPT-604 86-WOPT-605 86-WOPT-606 86-WOPT-607** 86-WOPT-608 86-WOPT-609	Sulfate	J (all detects)	A	Sample result verification

Moffett Air Field, Building 88, CTO 86  
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG  
47233/K2503021

SDG	Sample	Analyte	Modified Final Concentration	A or P
47233/ K2503021	86-WOPT-1135	Total organic carbon	0.60U mg/L	A



**NUMBER**  
**10771**

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management

MI-ALC600

Data Validation Package  
for  
Moffett Air Field, WATS Building 88, CTO 86  
ARF 47276

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## Case Narrative

ARF: 47276

Project: 1990.086D WATS Bldg 88 Moffett Airfield

State Certification Number: CA1312

Results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

### Sample Receipt Information:

The sample group was received April 27, 2005, at 4.0°C. The samples were assigned Analytical Request Form (ARF) number 47276. The sample numbers and requested analyses were compared to the chains of custody. No exception was noted.

Sample Table

CLIENT ID	APPL ID	Matrix	Date Sampled	Date Received
86-WOPT-122	AX18843	WATER	4/27/05	4/28/05
86-WOPT-116	AX18844	WATER	4/27/05	4/28/05
86-WOPT-121	AX18845	WATER	4/27/05	4/28/05
86-WOPT-120	AX18846	WATER	4/27/05	4/28/05
86-WOPT-117	AX18847	WATER	4/27/05	4/28/05
86-WOPT-113	AX18848	WATER	4/27/05	4/28/05
86-WOPT-112	AX18849	WATER	4/27/05	4/28/05

## **CLP Volatiles**

### **Volatile Organic Analysis**

#### **Sample Preparation:**

The samples were purged according to CLP. All holding times were met.

#### **Sample Analysis Information:**

The samples were analyzed according to the method using a Hewlett Packard Gas Chromatograph with a mass spectrometer detector. The sample pH were taken after analysis. All samples had a pH of 2.

#### **Quality Control/Assurance**

##### **Calibrations:**

Initial and continuing calibrations were performed according to the method. All calibration criteria were met.

##### **Blanks:**

For the 050510AM method blank, Acetone was detected below the reporting limit but above the MDL at 4.1 µg/L and Methylene chloride above the reporting limit at 3.0 µg/L. All Acetone and Methylene chloride results above the MDL were "B" flagged. No other target analyte was detected above the reporting limits in the method blanks.

##### **Spikes:**

Laboratory Control Spikes (LCS) were used for quality assurance. A second-source standard was used for the LCS. All spike and second-source criteria were met. A duplicate LCS was not performed with batch ID: 050511AH. This sequence was for the dilutions required for the analytes above the linear calibration range. All other recoveries were within acceptable limits.

No sample was designated by the client for MS/MSD analysis.

##### **Surrogates**

For the 050511AH Method blank, sample 86-WOPT-116 dilution, sample 86-WOPT-113 dilution, and the sample 86-WOPT-112 dilution, Toluene-d8 recovered above the 125% upper control limit at 127%, 130%, 128%, and 130% respectively. All other surrogate recoveries were within control limits.

##### **Tuning:**

The instrument was tuned using BFB. All method criteria were met.

##### **Internal Standards**

The internal standard area counts were compared to the continuing calibration according to CLP. All method criteria were met.

#### **Summary:**

No additional problem was encountered.

# **EPA Methods 6010B**

## **Metals**

### **Digestion Information:**

The water was digested according to EPA methods 3010A. No exceptions were encountered. All holding times were met.

### **Analysis Information:**

#### **Samples:**

The sample was analyzed for dissolved metals according to EPA method 6010B using a Perkin Elmer Optima 4300DV.

#### **Calibrations:**

Calibrations were performed according to the methods for the initial calibration and the initial calibration verification. The initial calibration verification is prepared from a second source standard.

#### **Blanks:**

Calcium and Sodium were detected below the reporting limit but above the MDL in the 050502BB method blank at 0.035mg/L and 0.29mg/L respectively. No target metal was detected above the reporting limits in the method blank.

#### **Spikes:**

Laboratory Control Spikes (LCS/LCSD) were used for quality assurance. LCS recoveries were within acceptance limits.

No sample was designated by the client for MS/MSD analysis.

### **Summary:**

No analytical exception is noted. All data are acceptable.



# **EPA Methods 300.0, 310.1 and 9060A**

## **Anions, Carbonates & Bi-carbonates and Total Organic Carbon**

### **Sample Preparation Information:**

A Dionex DX500 ion chromatograph was used for the EPA 300.0 analysis. The TOC was analyzed using a Shimadzu TOC-5050A instrument. The samples were screened down to the MDL.

### **Analysis Information:**

#### **Samples:**

The sample was analyzed according to the methods. A Dionex DX500 ion chromatograph was used for the EPA 300.0 analysis.

#### **Calibrations:**

Calibrations were performed according to the methods for the initial calibration and the initial calibration verification. The initial calibration verification is prepared from a second source standard.

#### **Blanks:**

No target analyte was detected above the reporting limits in the method blanks.

#### **Spikes:**

Laboratory Control Spikes (LCS/LCSD) and Sample Duplicates were used for quality assurance. All recoveries met acceptance criteria.

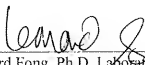
No sample was designated by the client for MS/MSD analysis. The laboratory designated sample 86-WOPT-113 for a EPA 310.1 matrix spike analysis. Bicarbonate was recovered within acceptable limits.

### **Summary:**

No analytical exception is noted.

## CERTIFICATION

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the hard copy has been authorized by the Laboratory Manager or his designee, as verified by the following signature:

 5/23/05  
\_\_\_\_\_  
Leonard Fong, Ph.D, Laboratory Director / Date

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-122

Sample Collection Date: 4/27/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47276

APPL ID: AX18843

CCG: SC42VT-050510AM-87204

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	5/10/05	5/10/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	5/10/05	5/10/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	0.5	0.21	ug/L	5/10/05	5/10/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	5/10/05	5/10/05
CLP VOL	1,1-Dichloroethane	Not detected	0.5	0.19	ug/L	5/10/05	5/10/05
CLP VOL	1,1-Dichloroethene	Not detected	0.5	0.30	ug/L	5/10/05	5/10/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	5/10/05	5/10/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	5/10/05	5/10/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	5/10/05	5/10/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	5/10/05	5/10/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	5/10/05	5/10/05
CLP VOL	Acetone	3.5 B J	5	0.95	ug/L	5/10/05	5/10/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	5/10/05	5/10/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	5/10/05	5/10/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	5/10/05	5/10/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	5/10/05	5/10/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	5/10/05	5/10/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	5/10/05	5/10/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	5/10/05	5/10/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	5/10/05	5/10/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	5/10/05	5/10/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	5/10/05	5/10/05
CLP VOL	cis-1,2-Dichloroethene	Not detected	0.5	0.16	ug/L	5/10/05	5/10/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	5/10/05	5/10/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	5/10/05	5/10/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	5/10/05	5/10/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	5/10/05	5/10/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	5/10/05	5/10/05
CLP VOL	Methylene Chloride	0.70 B	0.5	0.35	ug/L	5/10/05	5/10/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	5/10/05	5/10/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	5/10/05	5/10/05

J = Estimated value, below quantitation limit.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0510M09

Instrument: Max

Sequence: M050501

Dilution Factor: 1

Initials: LF

Printed: 5/23/05 11 57 15 AM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-122

Sample Collection Date: 4/27/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47276

APPL ID: AX18843

QCG: SC42VT-050510AM-87204

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	Not detected	0.5	0.15	ug/L	5/10/05	5/10/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	5/10/05	5/10/05
CLP VOL	trans-1,2-Dichloroethene	Not detected	0.5	0.19	ug/L	5/10/05	5/10/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	5/10/05	5/10/05
CLP VOL	Trichloroethene	Not detected	0.5	0.16	ug/L	5/10/05	5/10/05
CLP VOL	Vinyl Chloride	Not detected	0.5	0.23	ug/L	5/10/05	5/10/05
CLP VOL	Surrogate Recovery (BFB)	96.8	75-125		%	5/10/05	5/10/05
CLP VOL	Surrogate Recovery (DCA)	96.7	62-139		%	5/10/05	5/10/05
CLP VOL	Surrogate Recovery (TOL)	100	75-125		%	5/10/05	5/10/05

J = Estimated value, below quantitation limit.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0510M09  
Instrument: Max  
Sequence: M050501  
Dilution Factor: 1  
Initials: LF

Printed: 5/23/05 12:44:51 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1840 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47276

Sample ID: 86-WOPT-116

APPL ID: AX18844

Sample Collection Date: 4/27/05

OCG: SC42VT-050510AM-87204

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	1.8	0.5	0.14	ug/L	5/10/05	5/10/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	5/10/05	5/10/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	3.1	0.5	0.21	ug/L	5/10/05	5/10/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	5/10/05	5/10/05
CLP VOL	1,1-Dichloroethane	3.9	0.5	0.19	ug/L	5/10/05	5/10/05
CLP VOL	1,1-Dichloroethene	9.9	0.5	0.30	ug/L	5/10/05	5/10/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	5/10/05	5/10/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	5/10/05	5/10/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	5/10/05	5/10/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	5/10/05	5/10/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	5/10/05	5/10/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	5/10/05	5/10/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	5/10/05	5/10/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	5/10/05	5/10/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	5/10/05	5/10/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	5/10/05	5/10/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	5/10/05	5/10/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	5/10/05	5/10/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	5/10/05	5/10/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	5/10/05	5/10/05
CLP VOL	Chloroform	0.25 J	0.5	0.16	ug/L	5/10/05	5/10/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	5/10/05	5/10/05
CLP VOL	cis-1,2-Dichloroethene	280 E	0.5	0.16	ug/L	5/10/05	5/10/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	5/10/05	5/10/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	5/10/05	5/10/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	5/10/05	5/10/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	5/10/05	5/10/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	5/10/05	5/10/05
CLP VOL	Methylene Chloride	0.70 B	0.5	0.35	ug/L	5/10/05	5/10/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	5/10/05	5/10/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	5/10/05	5/10/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0510M10

Instrument: Max

Sequence: M050501

Dilution Factor: 1

Initials: LF

Printed 5/23/05 11:57:15 AM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Blenkowski

Project: 1999.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-116

Sample Collection Date: 4/27/05

ARF: 47276

APPL ID: AX18844

QC: SC42VT-050510AM-87204

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	150 E	0.5	0.15	ug/L	5/10/05	5/10/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	5/10/05	5/10/05
CLP VOL	trans-1,2-Dichloroethene	1.4	0.5	0.19	ug/L	5/10/05	5/10/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	5/10/05	5/10/05
CLP VOL	Trichloroethene	490 E	0.5	0.16	ug/L	5/10/05	5/10/05
CLP VOL	Vinyl Chloride	0.94	0.5	0.23	ug/L	5/10/05	5/10/05
CLP VOL	Surrogate Recovery (BFB)	96.3	75-125		%	5/10/05	5/10/05
CLP VOL	Surrogate Recovery (DCA)	93.6	62-139		%	5/10/05	5/10/05
CLP VOL	Surrogate Recovery (TOL)	101	75-125		%	5/10/05	5/10/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0510M10  
Instrument: Max  
Sequence: MC50501  
Dilution Factor: 1  
Initials: LF

Printed: 5/23/05 11:57:15 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech Fw, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-116**

Sample Collection Date: 4/27/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47276

**APPL ID: AX18844**

OCG: SC42VD-050511AH-87209

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	230	12.5	4.00	ug/L	5/11/05	5/11/05
CLP VOL	Tetrachloroethene	140	12.5	3.75	ug/L	5/11/05	5/11/05
CLP VOL	Trichloroethene	440	12.5	4.00	ug/L	5/11/05	5/11/05
CLP VOL	Surrogate Recovery (BFB)	119	75-125		%	5/11/05	5/11/05
CLP VOL	Surrogate Recovery (DCA)	91.0	62-139		%	5/11/05	5/11/05
CLP VOL	Surrogate Recovery (TOL)	130 #	75-125		%	5/11/05	5/11/05

# = Recovery (or RPD) is outside QC limits.

Run #: 0511H12  
Instrument: HEWEY  
Sequence: H050509  
Dilution Factor: 25  
Initials: LF

Printed: 5/23/05 12:45:00 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47276

Sample ID: 86-WOPT-121

APPL ID: AX18845

Sample Collection Date: 4/27/05

QCG: SC42VT-050510AM-87204

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	5/10/05	5/10/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	5/10/05	5/10/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	1.1	0.5	0.21	ug/L	5/10/05	5/10/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	5/10/05	5/10/05
CLP VOL	1,1-Dichloroethane	Not detected	0.5	0.19	ug/L	5/10/05	5/10/05
CLP VOL	1,1-Dichloroethene	0.36 J	0.5	0.30	ug/L	5/10/05	5/10/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	5/10/05	5/10/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	5/10/05	5/10/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	5/10/05	5/10/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	5/10/05	5/10/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	5/10/05	5/10/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	5/10/05	5/10/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	5/10/05	5/10/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	5/10/05	5/10/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	5/10/05	5/10/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	5/10/05	5/10/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	5/10/05	5/10/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	5/10/05	5/10/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	5/10/05	5/10/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	5/10/05	5/10/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	5/10/05	5/10/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	5/10/05	5/10/05
CLP VOL	cis-1,2-Dichloroethene	0.90	0.5	0.16	ug/L	5/10/05	5/10/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	5/10/05	5/10/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	5/10/05	5/10/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	5/10/05	5/10/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	5/10/05	5/10/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	5/10/05	5/10/05
CLP VOL	Methylene Chloride	0.72 B	0.5	0.35	ug/L	5/10/05	5/10/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	5/10/05	5/10/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	5/10/05	5/10/05

J = Estimated value, below quantitation limit.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0510M11

Instrument: Max

Sequence: M050501

Dilution Factor: 1

Initials: LF

Printed 5/23/05 11 57 15 AM

APPL-F1-SC-MCRes/MCPQL-REG MDLs



## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92706

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47276

**Sample ID: 86-WOPT-121**

**APPL ID: AX18845**

Sample Collection Date: 4/27/05

QCQ: SC42VT-050510AM-87204

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	0.31 J	0.5	0.15	ug/L	5/10/05	5/10/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	5/10/05	5/10/05
CLP VOL	trans-1,2-Dichloroethene	Not detected	0.5	0.19	ug/L	5/10/05	5/10/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	5/10/05	5/10/05
CLP VOL	Trichloroethene	20	0.5	0.16	ug/L	5/10/05	5/10/05
CLP VOL	Vinyl Chloride	Not detected	0.5	0.23	ug/L	5/10/05	5/10/05
CLP VOL	Surrogate Recovery (BFB)	98.1	75-125		%	5/10/05	5/10/05
CLP VOL	Surrogate Recovery (DCA)	92.5	62-139		%	5/10/05	5/10/05
CLP VOL	Surrogate Recovery (TOL)	102	75-125		%	5/10/05	5/10/05

J = Estimated value, below quantitation limit.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0510M11  
Instrument: Max  
Sequence: M050501  
Dilution Factor: 1  
Initials: LF

Printed: 5/23/05 11:57:15 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-120

Sample Collection Date: 4/27/05

APPL inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47276

APPL ID: AX18846

QCG: SC42VT-050510AM-87204

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	5/10/05	5/10/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	5/10/05	5/10/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	0.5	0.21	ug/L	5/10/05	5/10/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	5/10/05	5/10/05
CLP VOL	1,1-Dichloroethane	Not detected	0.5	0.19	ug/L	5/10/05	5/10/05
CLP VOL	1,1-Dichloroethene	Not detected	0.5	0.30	ug/L	5/10/05	5/10/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	5/10/05	5/10/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	5/10/05	5/10/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	5/10/05	5/10/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	5/10/05	5/10/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	5/10/05	5/10/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	5/10/05	5/10/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	5/10/05	5/10/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	5/10/05	5/10/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	5/10/05	5/10/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	5/10/05	5/10/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	5/10/05	5/10/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	5/10/05	5/10/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	5/10/05	5/10/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	5/10/05	5/10/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	5/10/05	5/10/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	5/10/05	5/10/05
CLP VOL	cis-1,2-Dichloroethene	0.47 J	0.5	0.16	ug/L	5/10/05	5/10/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	5/10/05	5/10/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	5/10/05	5/10/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	5/10/05	5/10/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	5/10/05	5/10/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	5/10/05	5/10/05
CLP VOL	Methylene Chloride	0.73 B	0.5	0.35	ug/L	5/10/05	5/10/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	5/10/05	5/10/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	5/10/05	5/10/05

J = Estimated value, below quantitation limit.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0510M12

Instrument: Max

Sequence: M050501

Dilution Factor: 1

Initials: LF

Printed 5/23/05 11 57 15 AM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-120

Sample Collection Date: 4/27/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47276

APPL ID: AX18846

QCG: SC42VT-050510AM-87204

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	Not detected	0.5	0.15	ug/L	5/10/05	5/10/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	5/10/05	5/10/05
CLP VOL	trans-1,2-Dichloroethene	0.23 J	0.5	0.19	ug/L	5/10/05	5/10/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	5/10/05	5/10/05
CLP VOL	Trichloroethene	2.8	0.5	0.16	ug/L	5/10/05	5/10/05
CLP VOL	Vinyl Chloride	Not detected	0.5	0.23	ug/L	5/10/05	5/10/05
CLP VOL	Surrogate Recovery (BFB)	101	75-125		%	5/10/05	5/10/05
CLP VOL	Surrogate Recovery (DCA)	99.0	62-139		%	5/10/05	5/10/05
CLP VOL	Surrogate Recovery (TOL)	99.7	75-125		%	5/10/05	5/10/05

J = Estimated value, below quantitation limit.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0510M12  
Instrument: Max  
Sequence: M05C01  
Dilution Factor: 1  
Initials: LF

Printed: 5/23/05 11:57:15 AM  
APPL-F1-SC-MCRs/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 68 Moffett Airfield

ARF: 47276

Sample ID: 86-WOPT-117

APPL ID: AX18847

Sample Collection Date: 4/27/05

QCG: SC42VT-050510AM-87204

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	0.61	0.5	0.14	ug/L	5/10/05	5/10/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	5/10/05	5/10/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	61	0.5	0.21	ug/L	5/10/05	5/10/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	5/10/05	5/10/05
CLP VOL	1,1-Dichloroethane	8.7	0.5	0.19	ug/L	5/10/05	5/10/05
CLP VOL	1,1-Dichloroethene	48	0.5	0.30	ug/L	5/10/05	5/10/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	5/10/05	5/10/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	5/10/05	5/10/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	5/10/05	5/10/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	5/10/05	5/10/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	5/10/05	5/10/05
CLP VOL	Acetone	1.6 B J	5	0.95	ug/L	5/10/05	5/10/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	5/10/05	5/10/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	5/10/05	5/10/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	5/10/05	5/10/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	5/10/05	5/10/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	5/10/05	5/10/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	5/10/05	5/10/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	5/10/05	5/10/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	5/10/05	5/10/05
CLP VOL	Chloroform	0.49 J	0.5	0.16	ug/L	5/10/05	5/10/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	5/10/05	5/10/05
CLP VOL	cis-1,2-Dichloroethene	320 E	0.5	0.16	ug/L	5/10/05	5/10/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	5/10/05	5/10/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	5/10/05	5/10/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	5/10/05	5/10/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	5/10/05	5/10/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	5/10/05	5/10/05
CLP VOL	Methylene Chloride	0.67 B	0.5	0.35	ug/L	5/10/05	5/10/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	5/10/05	5/10/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	5/10/05	5/10/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0510M13  
Instrument: Max  
Sequence: M050501  
Dilution Factor: 1  
Initials: LF

Printed: 5/23/05 11:57:15 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 38 Moffett Airfield

ARF: 47276

Sample ID: 86-WOPT-117

APPL ID: AX18847

Sample Collection Date: 4/27/05

QCQ: SC42VT-050510AM-87204

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	170 E	0.5	0.15	ug/L	5/10/05	5/10/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	5/10/05	5/10/05
CLP VOL	trans-1,2-Dichloroethene	1.6	0.5	0.19	ug/L	5/10/05	5/10/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	5/10/05	5/10/05
CLP VOL	Trichloroethene	1900 E	0.5	0.16	ug/L	5/10/05	5/10/05
CLP VOL	Vinyl Chloride	2.1	0.5	0.23	ug/L	5/10/05	5/10/05
CLP VOL	Surrogate Recovery (BFB)	98.7	75-125		%	5/10/05	5/10/05
CLP VOL	Surrogate Recovery (DCA)	99.7	62-139		%	5/10/05	5/10/05
CLP VOL	Surrogate Recovery (TOL)	100	75-125		%	5/10/05	5/10/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0510M13  
Instrument: Max  
Sequence: M050501  
Dilution Factor: 1  
Initials: LF

Printed: 5/23/05 11:57:15 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-117

Sample Collection Date: 4/27/05

ARF: 47276

APPL ID: AX18847

QCG: SC42VD-050511AH-67209

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	330	100	32.00	ug/L	5/11/05	5/11/05
CLP VOL	Tetrachloroethene	140	100	30.00	ug/L	5/11/05	5/11/05
CLP VOL	Trichloroethene	2700	100	32.00	ug/L	5/11/05	5/11/05
CLP VOL	Surrogate Recovery (BFB)	112	75-125		%	5/11/05	5/11/05
CLP VOL	Surrogate Recovery (DCA)	102	62-139		%	5/11/05	5/11/05
CLP VOL	Surrogate Recovery (TOL)	116	75-125		%	5/11/05	5/11/05

Run #: 0511H14  
Instrument: HEWEY  
Sequence: H050509  
Dilution Factor: 200  
Initials: LF

Printed: 5/23/05 11:57:15 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47276

Sample ID: 86-WOPT-113

APPL ID: AX18848

Sample Collection Date: 4/27/05

QCG: SC42VT-050510AM-87204

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	5/10/05	5/10/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	5/10/05	5/10/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	67	0.5	0.21	ug/L	5/10/05	5/10/05
CLP VOL	1,1,2-Trichloroethane	0.44 J	0.5	0.2	ug/L	5/10/05	5/10/05
CLP VOL	1,1-Dichloroethane	13	0.5	0.19	ug/L	5/10/05	5/10/05
CLP VOL	1,1-Dichloroethene	74	0.5	0.30	ug/L	5/10/05	5/10/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	5/10/05	5/10/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	5/10/05	5/10/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	5/10/05	5/10/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	5/10/05	5/10/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	5/10/05	5/10/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	5/10/05	5/10/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	5/10/05	5/10/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	5/10/05	5/10/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	5/10/05	5/10/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	5/10/05	5/10/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	5/10/05	5/10/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	5/10/05	5/10/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	5/10/05	5/10/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	5/10/05	5/10/05
CLP VOL	Chloroform	0.38 J	0.5	0.16	ug/L	5/10/05	5/10/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	5/10/05	5/10/05
CLP VOL	cis-1,2-Dichloroethene	1000 E	0.5	0.16	ug/L	5/10/05	5/10/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	5/10/05	5/10/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	5/10/05	5/10/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	5/10/05	5/10/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	5/10/05	5/10/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	5/10/05	5/10/05
CLP VOL	Methylene Chloride	0.88 B	0.5	0.35	ug/L	5/10/05	5/10/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	5/10/05	5/10/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	5/10/05	5/10/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0510M14

Instrument: Max

Sequence: M050501

Dilution Factor: 1

Initials: LF

Printed: 5/23/05 11:57:15 AM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Blenkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-113

Sample Collection Date: 4/27/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47276

APPL ID: AX18848

QCG: \$C42VT-050510AM-87204

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	67	0.5	0.15	ug/L	5/10/05	5/10/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	5/10/05	5/10/05
CLP VOL	trans-1,2-Dichloroethene	9.5	0.5	0.19	ug/L	5/10/05	5/10/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	5/10/05	5/10/05
CLP VOL	Trichloroethene	2300 E	0.5	0.16	ug/L	5/10/05	5/10/05
CLP VOL	Vinyl Chloride	3.3	0.5	0.23	ug/L	5/10/05	5/10/05
CLP VOL	Surrogate Recovery (BFB)	99.2	75-125		%	5/10/05	5/10/05
CLP VOL	Surrogate Recovery (DCA)	93.9	62-139		%	5/10/05	5/10/05
CLP VOL	Surrogate Recovery (TOL)	103	75-125		%	5/10/05	5/10/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0510M14

Instrument: Max

Sequence: M050501

Dilution Factor: 1

Initials: LF

Printed: 5/23/05 11:57:15 AM

APPL-F1-SC-MCRes/MCPQL-REG MDLs



## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-113**

Sample Collection Date: 4/27/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47276

**APPL ID: AX18848**

QCG: SC42VD-050511AH-87209

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	940	100	32.00	ug/L	5/11/05	5/11/05
CLP VOL	Trichloroethene	4500	100	32.00	ug/L	5/11/05	5/11/05
CLP VOL	Surrogate Recovery (BFB)	121	75-125		%	5/11/05	5/11/05
CLP VOL	Surrogate Recovery (DCA)	96.0	62-139		%	5/11/05	5/11/05
CLP VOL	Surrogate Recovery (TOL)	128 #	75-125		%	5/11/05	5/11/05

# = Recovery (or RPD) is outside QC limits.

Run #: 0511H13  
Instrument: HEWEY  
Sequence: H050509  
Dilution Factor: 200  
Initials: LF

Printed: 5/23/05 11:57:15 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47276

Sample ID: 86-WOPT-112

APPL ID: AX18849

Sample Collection Date: 4/27/05

QCG: SC42VT-050510AM-87204

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	1.8	0.5	0.14	ug/L	5/10/05	5/10/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	5/10/05	5/10/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	3.2	0.5	0.21	ug/L	5/10/05	5/10/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	5/10/05	5/10/05
CLP VOL	1,1-Dichloroethane	11	0.5	0.19	ug/L	5/10/05	5/10/05
CLP VOL	1,1-Dichloroethene	11	0.5	0.30	ug/L	5/10/05	5/10/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	5/10/05	5/10/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	5/10/05	5/10/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	5/10/05	5/10/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	5/10/05	5/10/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	5/10/05	5/10/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	5/10/05	5/10/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	5/10/05	5/10/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	5/10/05	5/10/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	5/10/05	5/10/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	5/10/05	5/10/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	5/10/05	5/10/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	5/10/05	5/10/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	5/10/05	5/10/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	5/10/05	5/10/05
CLP VOL	Chloroform	1.1	0.5	0.16	ug/L	5/10/05	5/10/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	5/10/05	5/10/05
CLP VOL	cis-1,2-Dichloroethene	220 E	0.5	0.16	ug/L	5/10/05	5/10/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	5/10/05	5/10/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	5/10/05	5/10/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	5/10/05	5/10/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	5/10/05	5/10/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	5/10/05	5/10/05
CLP VOL	Methylene Chloride	0.72	0.5	0.35	ug/L	5/10/05	5/10/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	5/10/05	5/10/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	5/10/05	5/10/05

E = The reported value exceeds linear range.

Run #: 0510M15  
Instrument: Max  
Sequence: M050501  
Dilution Factor: 1  
Initials: LF

Printed: 5/23/05 11:57:15 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47276

Sample ID: 86-WOPT-112

APPL ID: AX18849

Sample Collection Date: 4/27/05

QCC: SC42VT-050510AM-87204

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	3.6	0.5	0.15	ug/L	5/10/05	5/10/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	5/10/05	5/10/05
CLP VOL	trans-1,2-Dichloroethene	2.9	0.5	0.19	ug/L	5/10/05	5/10/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	5/10/05	5/10/05
CLP VOL	Trichloroethene	1000 E	0.5	0.16	ug/L	5/10/05	5/10/05
CLP VOL	Vinyl Chloride	0.93	0.5	0.23	ug/L	5/10/05	5/10/05
CLP VOL	Surrogate Recovery (BFB)	96.1	75-125		%	5/10/05	5/10/05
CLP VOL	Surrogate Recovery (DCA)	92.9	62-139		%	5/10/05	5/10/05
CLP VOL	Surrogate Recovery (TOL)	102	75-125		%	5/10/05	5/10/05

E = The reported value exceeds linear range.

Run #: 0510M15  
Instrument: Max  
Sequence: M050501  
Dilution Factor: 1  
Initials: LF

Printed 5/23/05 11:57:16 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: **86-WOPT-112**

Sample Collection Date: 4/27/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47276

APPL ID: **AX18849**

QCG: 5C42VD-050511AH-87209

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	220	50	16.00	ug/L	5/11/05	5/11/05
CLP VOL	Trichloroethene	950	50	16.00	ug/L	5/11/05	5/11/05
CLP VOL	Surrogate Recovery (BFB)	125	75-125		%	5/11/05	5/11/05
CLP VOL	Surrogate Recovery (DCA)	97.1	62-139		%	5/11/05	5/11/05
CLP VOL	Surrogate Recovery (TOL)	130 #	75-125		%	5/11/05	5/11/05

# = Recovery (or RPD) is outside QC limits.

Run #: 0511H15  
Instrument: HEWEY  
Sequence: H050509  
Dilution Factor: 100  
Initials: LF

Printed 5/23/05 11:57:15 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47276

Sample ID: 86-WOPT-116

APPL ID: AX18844

Sample Collection Date: 4/27/05

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	227	25	0.14	mg/L	5/2/05	5/20/05
6010B	Calcium (Ca)	199 E	5	0.0272	mg/L	5/2/05	5/19/05
6010B	Iron (Fe)	0.027 J	0.1	0.0258	mg/L	5/2/05	5/19/05
6010B	Magnesium (Mg)	67.1	5	0.0129	mg/L	5/2/05	5/19/05
6010B	Potassium (K)	1.4 J	5	0.0995	mg/L	5/2/05	5/19/05
6010B	Sodium (Na)	36.8	5	0.1111	mg/L	5/2/05	5/19/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Printed: 5/23/05 4:08:23 PM

3L-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1930.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-121**

Sample Collection Date: 4/27/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47276

**APPL ID: AX18845**

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	37.1	5	0.0272	mg/L	5/2/05	5/19/05
6010B	Iron (Fe)	0.060 J	0.1	0.0258	mg/L	5/2/05	5/19/05
6010B	Magnesium (Mg)	15.2	5	0.0129	mg/L	5/2/05	5/19/05
6010B	Potassium (K)	0.87 J	5	0.0995	mg/L	5/2/05	5/19/05
6010B	Sodium (Na)	42.4	5	0.1111	mg/L	5/2/05	5/19/05

J = Estimated value, below quantitation limit.

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2L-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-120

Sample Collection Date: 4/27/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47276

APPL ID: AX18846

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	11.7	5	0.0272	mg/L	5/2/05	5/19/05
6010B	Iron (Fe)	3.4	0.1	0.0258	mg/L	5/2/05	5/19/05
6010B	Magnesium (Mg)	2.4 J	5	0.0129	mg/L	5/2/05	5/19/05
6010B	Potassium (K)	4.4 J	5	0.0995	mg/L	5/2/05	5/19/05
6010B	Sodium (Na)	13.8	5	0.1111	mg/L	5/2/05	5/19/05

J = Estimated value, below quantitation limit.

Printed: 5/23/05 4:08:23 PM

L-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47276

Sample ID: 86-WOPT-117

APPL ID: AX18847

Sample Collection Date: 4/27/05

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	173	25	0.14	mg/L	5/2/05	5/20/05
6010B	Calcium (Ca)	154 E	5	0.0272	mg/L	5/2/05	5/19/05
6010B	Iron (Fe)	0.039 J	0.1	0.0258	mg/L	5/2/05	5/19/05
6010B	Magnesium (Mg)	47.5	5	0.0129	mg/L	5/2/05	5/19/05
6010B	Potassium (K)	1.7 J	5	0.0995	mg/L	5/2/05	5/19/05
6010B	Sodium (Na)	34.2	5	0.1111	mg/L	5/2/05	5/19/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Printed: 5/23/05 4:08:23 PM

2L-F1-SC-MCRes/MCPQL-REG MDLs



## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

ARF: 47276

Sample ID: 86-WOPT-113

APPL ID: AX18846

Sample Collection Date: 4/27/05

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	143	25	0.14	mg/L	5/2/05	5/20/05
6010B	Calcium (Ca)	127 E	5	0.0272	mg/L	5/2/05	5/19/05
6010B	Iron (Fe)	0.075 J	0.1	0.0258	mg/L	5/2/05	5/19/05
6010B	Magnesium (Mg)	39.2	5	0.0129	mg/L	5/2/05	5/19/05
6010B	Potassium (K)	1.8 J	5	0.0695	mg/L	5/2/05	5/19/05
6010B	Sodium (Na)	37.6	5	0.1111	mg/L	5/2/05	5/19/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Printed: 5/23/05 4:08:23 PM

3L-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990.C86D WATS Bldg 88 Moffett Airfield  
Sample ID: 86-WOPT-112  
Sample Collection Date: 4/27/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47276

APPL ID: AX18849

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	152	25	0.14	mg/L	5/2/05	5/20/05
6010B	Calcium (Ca)	137 E	5	0.0272	mg/L	5/2/05	5/19/05
6010B	Iron (Fe)	1.9	0.1	0.0258	mg/L	5/2/05	5/19/05
6010B	Magnesium (Mg)	50.1	5	0.0129	mg/L	5/2/05	5/19/05
6010B	Potassium (K)	1.7 J	5	0.0095	mg/L	5/2/05	5/19/05
6010B	Sodium (Na)	36.9	5	0.1111	mg/L	5/2/05	5/19/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Printed: 5/23/05 4:08:23 PM

2L-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-116

Sample Collection Date: 4/27/05

APPL ID: AX18844

ARF: 47276

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	40900	1000	80	ug/L	4/28/05	4/28/05
EPA 300.0	Nitrate	6270	200	15	ug/L	4/28/05	4/28/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/28/05	4/28/05
EPA 300.0	Sulfate	549000 E	1000	90	ug/L	4/28/05	4/28/05
EPA 300.0	Sulfate	468000	5000	450	ug/L	4/28/05	4/28/05
EPA 310.1	Bicarbonate	404	5	0.787	mg/L	5/6/05	5/6/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	5/6/05	5/6/05

E = The reported value exceeds linear range.

Printed: 5/23/05 12:30:54 PM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-121**

Sample Collection Date: 4/27/05

**APPL ID: AX18845**

ARF: 47276

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	14200	1000	80	ug/L	4/28/05	4/28/05
EPA 300.0	Nitrate	3510	200	15	ug/L	4/28/05	4/28/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/28/05	4/28/05
EPA 300.0	Sulfate	19300	1000	90	ug/L	4/28/05	4/28/05
EPA 310.1	Bicarbonate	224	5	0.787	mg/L	5/6/05	5/6/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	5/6/05	5/6/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-120

Sample Collection Date: 4/27/05

APPL ID: AX18846

ARF: 47276

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	7380	1000	80	ug/L	4/28/05	4/28/05
EPA 300.0	Nitrate	Not detected	200	15	ug/L	4/28/05	4/28/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/28/05	4/28/05
EPA 300.0	Sulfate	5590	1000	90	ug/L	4/28/05	4/28/05
EPA 310.1	Bicarbonate	51.3	5	0.787	mg/L	5/6/05	5/6/05
EPA 310.1	Carbonate	7.6	5	0.787	mg/L	5/6/05	5/6/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Biankowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-117

Sample Collection Date: 4/27/05

APPL ID: AX18847

ARF: 47276

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	40400	1000	80	ug/L	4/28/05	4/28/05
EPA 300.0	Nitrate	9180	200	15	ug/L	4/28/05	4/28/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/28/05	4/28/05
EPA 300.0	Sulfate	373000 E	1000	90	ug/L	4/28/05	4/28/05
EPA 300.0	Sulfate	310000	5000	450	ug/L	4/28/05	4/28/05
EPA 310.1	Bicarbonate	296	5	0.787	mg/L	5/6/05	5/6/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	5/6/05	5/6/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-113

Sample Collection Date: 4/27/05

APPL ID: AX18848

ARF: 47276

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	39600	1000	80	ug/L	4/28/05	4/28/05
EPA 300.0	Nitrate	12200	200	15	ug/L	4/28/05	4/28/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/28/05	4/28/05
EPA 300.0	Sulfate	294000 E	1000	90	ug/L	4/28/05	4/28/05
EPA 300.0	Sulfate	246000	5000	450	ug/L	4/28/05	4/28/05
EPA 310.1	Bicarbonate	276	5	0.787	mg/L	5/6/05	5/6/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	5/6/05	5/6/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-112

Sample Collection Date: 4/27/05

APPL ID: AX18849

ARF: 47276

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	26100	1000	80	ug/L	4/28/05	4/28/05
EPA 300.0	Nitrate	11500	200	15	ug/L	4/28/05	4/28/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/28/05	4/28/05
EPA 300.0	Sulfate	223000 E	1000	90	ug/L	4/28/05	4/28/05
EPA 300.0	Sulfate	185000	5000	450	ug/L	4/28/05	4/28/05
EPA 310.1	Bicarbonate	422	5	0.787	mg/L	5/6/05	5/6/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	5/6/05	5/6/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Air Field, Building 88, CTO 86

**Collection Date:** April 27, 2005

**LDC Report Date:** May 27, 2005

**Matrix:** Water

**Parameters:** Volatiles

**Validation Level:** EPA Level III & IV

**Laboratory:** APPL, Inc.

**Sample Delivery Group (SDG):** 47276

**Sample Identification**

86-WOPT-122  
86-WOPT-116  
86-WOPT-116DL  
86-WOPT-121  
86-WOPT-120  
86-WOPT-117  
86-WOPT-117DL  
86-WOPT-113  
86-WOPT-113DL  
86-WOPT-112\*\*  
86-WOPT-112DL\*\*

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 11 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Contract Laboratory Program Statement of Work (SOW) OLM04.2 for Volatiles.

This review follows USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999); the following subsections correlate to the above guidelines.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 30.0% for all compounds.

Average relative response factors (RRF) for all volatile target compounds and system monitoring compounds were within validation criteria.

## IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 25.0% .

All of the continuing calibration RRF values were within validation criteria.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Analysis Data	Compound TIC (RT in minutes)	Concentration	Associated Samples
050510W	5/10/05	Acetone Methylene chloride	4.1 ug/L 3.0 ug/L	86-WOPT-122 86-WOPT-116 86-WOPT-121 86-WOPT-120 86-WOPT-117 86-WOPT-113 86-WOPT-112**

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
86-WOPT-122	Acetone Methylene chloride	3.5 ug/L 0.70 ug/L	5U ug/L 0.70U ug/L
86-WOPT-116	Methylene chloride	0.70 ug/L	0.70U ug/L
86-WOPT-121	Methylene chloride	0.72 ug/L	0.72U ug/L
86-WOPT-120	Methylene chloride	0.73 ug/L	0.73U ug/L
86-WOPT-117	Acetone Methylene chloride	1.6 ug/L 0.67 ug/L	5U ug/L 0.67U ug/L
86-WOPT-113	Methylene chloride	0.88 ug/L	0.88U ug/L
86-WOPT-112**	Methylene chloride	0.72 ug/L	0.72U ug/L

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the SOW. All surrogate recoveries (%R) were within QC limits with the following exceptions:

Sample	Surrogate	%R (Limits)	Compound	Flag	A or P
050511W	Toluene-d8	127 (75-125)	All TCL compounds	J (all detects)	P
86-WOPT-116DL	Toluene-d8	130 (75-125)	All TCL compounds	J (all detects)	A
86-WOPT-113DL	Toluene-d8	128 (75-125)	All TCL compounds	J (all detects)	A
86-WOPT-112DL**	Toluene-d8	130 (75-125)	All TCL compounds	J (all detects)	A

## VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## VIII. Laboratory Control Samples (LCS)

Although laboratory control samples were not required by the method, laboratory control samples were reported by the laboratory. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## IX. Regional Quality Assurance and Quality Control

Not applicable.

## X. Internal Standards

All internal standard areas and retention times were within QC limits.

## XI. Target Compound Identifications

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
86-WOPT-116 86-WOPT-117	cis-1,2-Dichloroethene Tetrachloroethene Trichloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects) J (all detects)	A
86-WOPT-113 86-WOPT-112**	cis-1,2-Dichloroethene Trichloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects)	A

Raw data were not evaluated for the samples reviewed by Level III criteria.

## XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

## XIV. System Performance

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

#### **XV. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

#### **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

#### **XVII. Field Blanks**

Sample 86-WOPT-122 was identified as a trip blank. No volatile contaminants were found in this blank with the following exceptions:

<b>Trip Blank ID</b>	<b>Compound</b>	<b>Concentration (ug/L)</b>
86-WOPT-122	Acetone Methylene chloride	3.5 0.70

**Moffett Air Field, Building 88, CTO 86**  
**Volatiles - Data Qualification Summary - SDG 47276**

SDG	Sample	Compound	Flag	A or P	Reason
47276	86-WOPT-116DL 86-WOPT-113DL 86-WOPT-112DL**	All TCL compounds	J (all detects)	A	Surrogate spikes (%R)
47276	86-WOPT-116 86-WOPT-117	cis-1,2-Dichloroethene Tetrachloroethene Trichloroethene	J (all detects) J (all detects) J (all detects)	A	Compound quantitation and CROLS
47276	86-WOPT-113 86-WOPT-112**	cis-1,2-Dichloroethene Trichloroethene	J (all detects) J (all detects)	A	Compound quantitation and CROLS

**Moffett Air Field, Building 88, CTO 86**  
**Volatiles - Laboratory Blank Data Qualification Summary - SDG 47276**

SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P
47276	86-WOPT-122	Acetone Methylene chloride	5U ug/L 0.70U ug/L	A
47276	86-WOPT-116	Methylene chloride	0.70U ug/L	A
47276	86-WOPT-121	Methylene chloride	0.72U ug/L	A
47276	86-WOPT-120	Methylene chloride	0.73U ug/L	A
47276	86-WOPT-117	Acetone Methylene chloride	5U ug/L 0.67U ug/L	A
47276	86-WOPT-113	Methylene chloride	0.88U ug/L	A
47276	86-WOPT-112**	Methylene chloride	0.72U ug/L	A

**Laboratory Data Consultants, Inc.**  
**Data Validation Report**

**Project/Site Name:** Moffett Air Field, Building 88, CTO 86

**Collection Date:** April 27, 2005

**LDC Report Date:** May 27, 2005

**Matrix:** Water

**Parameters:** Metals

**Validation Level:** EPA Level III & IV

**Laboratory:** APPL, Inc.

**Sample Delivery Group (SDG):** 47276

**Sample Identification**

86-WOPT-116  
86-WOPT-121  
86-WOPT-120  
86-WOPT-117  
86-WOPT-113  
86-WOPT-112\*\*  
86-WOPT-116DL  
86-WOPT-117DL  
86-WOPT-113DL  
86-WOPT-112DL\*\*

\*\*Indicates sample underwent EPA Level IV review



## Introduction

This data review covers 10 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 6010B for Metals. The metals analyzed were Calcium, Iron, Magnesium, Potassium, and Sodium.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

## III. Blanks

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Calcium Sodium	0.035 mg/L 0.29 mg/L	All samples in SDG 47276

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks.

## IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

## V. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spika ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
86-WOPT-111MS;MSD (86-WOPT-116 86-WOPT-121 86-WOPT-120 86-WOPT-117 86-WOPT-113 86-WOPT-112**)	Magnesium	-	79.6 (80-120)	-	J (all detects) UJ (all non-detects)	A

## VI. Duplicate Sample Analysis

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

## VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Internal Standards

ICP-MS was not utilized in this SDG.

## IX. Furnace Atomic Absorption QC

Graphite furnace atomic absorption was not utilized in this SDG.

## X. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met.

## XI. Sample Result Verification

All sample result verification met validation criteria with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
86-WOPT-116 86-WOPT-117 86-WOPT-113 86-WOPT-112**	Calcium	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	A

Raw data were not evaluated for samples reviewed by Level III criteria.

## **XII. Overall Assessment of Data**

Data flags have been summarized at the end of this report.

## **XIII. Field Duplicates**

No field duplicates were identified in this SDG.

## **XIV. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Air Field, Building 88, CTO 86**  
**Metals - Data Qualification Summary - SDG 47276**

SDG	Sample	Analyte	Flag	A or P	Reason
47276	86-WOPT-116 86-WOPT-121 86-WOPT-120 86-WOPT-117 86-WOPT-113 86-WOPT-112**	Sodium	J (all detects)	A	Matrix spike/Matrix spike duplicates (%R)
47276	86-WOPT-116 86-WOPT-117 86-WOPT-113 86-WOPT-112**	Calcium	J (all detects)	A	Sample result verification

**Moffett Air Field, Building 88, CTO 86**  
**Metals - Laboratory Blank Data Qualification Summary - SDG 47276**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.**  
**Data Validation Report**

**Project/Site Name:** Moffett Air Field, Building 88, CTO 86

**Collection Date:** April 27, 2005

**LDC Report Date:** May 27, 2005

**Matrix:** Water

**Parameters:** Wet Chemistry

**Validation Level:** EPA Level III & IV

**Laboratory:** APPL, Inc.

**Sample Delivery Group (SDG):** 47276

**Sample Identification**

86-WOPT-116  
86-WOPT-121  
86-WOPT-120  
86-WOPT-117  
86-WOPT-113  
86-WOPT-112\*\*  
86-WOPT-116DL  
86-WOPT-117DL  
86-WOPT-113DL  
86-WOPT-112DL\*\*  
86-WOPT-113MS

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 11 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 300.0 for Chloride, Nitrate, Nitrite, and Sulfate, and EPA Method 310.1 for Carbonate and Bicarbonate.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section IX.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Calibration**

### **a. Initial Calibration**

All criteria for the initial calibration of each method were met.

### **b. Calibration Verification**

Calibration verification frequency and analysis criteria were met for each method when applicable.

## **III. Blanks**

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the method blanks.

## **IV. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **V. Duplicates**

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

## **VI. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VII. Sample Result Verification**

All sample result verification met validation criteria with the following exceptions:



Sample	Analyte	Finding	Criteria	Flag	A or P
86-WOPT-116 86-WOPT-117 86-WOPT-113 86-WOPT-112**	Sulfate	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	A

Raw data were not evaluated for the samples reviewed by Level III criteria.

### VIII. Overall Assessment of Data

Data flags are summarized at the end of this report.

### IX. Field Duplicates

No field duplicates were identified in this SDG.

### X. Field Blanks

No field blanks were identified in this SDG.

**Moffett Air Field, Building 88, CTO 86**  
**Wet Chemistry - Data Qualification Summary - SDG 47276**

SDG	Sample	Compound	Flag	A or P	Reason
47276	86-WOPT-116 86-WOPT-117 86-WOPT-113 86-WOPT-112**	Sulfate	J (all defects)	A	Sample result verification

**Moffett Air Field, Building 88, CTO 86**  
**Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 47276**

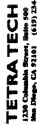
No Sample Data Qualified in this SDG



## CHAIN-OF-CUSTODY RECORD

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management

0047294-1N



## CHAIN-OF-CUSTODY RECORD

[illegible]

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management

1000-1000

Data Validation Package  
for  
Moffett Air Field, WATS Building 88, CTO 86  
ARF 47294

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## Case Narrative

ARF: 47294

Project: 1990.0S6D WATS Bidg 88 Moffett Airfield

State Certification Number: CA1312

Results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

### Sample Receipt Information:

The sample group was received April 29, 2005, at 4.0°C. The samples were assigned Analytical Request Form (ARF) number 47294. The sample numbers and requested analyses were compared to the chains of custody. No exception was noted.

Sample Table

CLIENT ID	APPL ID	Matrix	Date Sampled	Date Received
86-WOPT-123	AX18972	WATER	4/28/05	4/29/05
86-WOPT-110	AX18973	WATER	4/28/05	4/29/05
86-WOPT-108	AX18974	WATER	4/28/05	4/29/05
86-WOPT-109	AX18975	WATER	4/28/05	4/29/05
86-WOPT-111	AX18976	WATER	4/28/05	4/29/05
86-WOPT-119	AX18977	WATER	4/28/05	4/29/05
86-WOPT-115	AX18978	WATER	4/28/05	4/29/05
86-WOPT-114	AX18979	WATER	4/28/05	4/29/05
86-WOPT-106	AX18980	WATER	4/28/05	4/29/05
86-WOPT-107	AX18981	WATER	4/28/05	4/29/05
86-WOPT-105	AX18982	WATER	4/28/05	4/29/05
86-WOPT-118	AX18983	WATER	4/28/05	4/29/05

## CLP Volatiles

### Volatile Organic Analysis

#### Sample Preparation:

The samples were purged according to CLP. All holding times were met.

#### Sample Analysis Information:

The samples were analyzed according to the method using a Hewlett Packard Gas Chromatograph with a mass spectrometer detector. The sample pH were taken after analysis. All samples had a pH of 2.

#### Quality Control/Assurance

##### Calibrations:

Initial and continuing calibrations were performed according to the method. For the continuing calibration performed on Max file ID: 0510M23W.D, Bromomethane had a 32%D. All other calibration criteria were met.

##### Blanks:

For the 050510AM method blank, Acetone was detected below the reporting limit but above the MDL at 4.1µg/L and Methylene chloride above the reporting limit at 3.0µg/L. For the 050510BM method blank, Acetone was detected below the reporting limit but above the MDL at 2.3µg/L and Methylene chloride above the reporting limit at 0.59µg/L. All Acetone and Methylene chloride results above the MDL were "B" flagged. No other target analyte was detected above the reporting limits in the method blanks.

##### Spikes:

Laboratory Control Spikes (LCS) were used for quality assurance. A second-source standard was used for the LCS. All spike and second-source criteria were met. A duplicate LCS was not performed with batch ID: 050511AH. This sequence was for the dilutions required for the analytes above the linear calibration range. All other recoveries were within acceptable limits.

Sample 86-WOPT-111 was designated by the client for MS/MSD analysis. All recoveries met acceptance criteria.

##### Surrogates

For the dilutions performed on Hlewey 5/12/05, the Toluene-d8 and/or the Bromofluorobenzene surrogates were slight above the 125% upper control limit for the method blank, samples 86-WOPT-110, 86-WOPT-109, 86-WOPT-111, 86-WOPT-115, 86-WOPT-114, 86-WOPT-106, 86-WOPT-107, and 86-WOPT-105. For the 050511AH Method blank, sample 86-WOPT-116 dilution, sample 86-WOPT-113 dilution, and the sample 86-WOPT-112 dilution, Toluene-d8 recovered above the 125% upper control limit at 127%, 130%, 128%, and 130% respectively. All other surrogate recoveries were within control limits.

##### Tuning:

The instrument was tuned using BFB. All method criteria were met.

**Internal Standards**

The internal standard area counts were compared to the continuing calibration according to CLP. All method criteria were met.

**Summary:**

No additional problem was encountered.



## **EPA Methods 6010B**

### **Metals**

#### **Digestion Information:**

The water was digested according to EPA methods 3010A. No exceptions were encountered. All holding times were met.

#### **Analysis Information:**

##### **Samples:**

The sample was analyzed for dissolved metals according to EPA method 6010B using a Perkin Elmer Optima 4300DV.

##### **Calibrations:**

Calibrations were performed according to the methods for the initial calibration and the initial calibration verification. The initial calibration verification is prepared from a second source standard.

##### **Blanks:**

Calcium and Sodium were detected below the reporting limit but above the MDL in the 050502B method blank at 0.035mg/L and 0.29mg/L respectively. No other target metal was detected above the reporting limits in the method blank.

##### **Spikes:**

Laboratory Control Spikes (LCS/LCSD) were used for quality assurance. LCS recoveries were within acceptance limits.

Sample 86-WOPT-111 was designated by the client for MS/MSD analysis. All recoveries met acceptance criteria.

#### **Summary:**

No analytical exception is noted. All data are acceptable.

## **EPA Methods 300.0 and 310.1**

### **Anions, Carbonates and Bi-carbonates**

#### **Sample Preparation Information:**

A Dionex DX500 ion chromatograph was used for the EPA 300.0 analysis. The samples were screened down to the MDL.

#### **Analysis Information:**

##### **Samples:**

The sample was analyzed according to the methods. A Dionex DX500 ion chromatograph was used for the EPA 300.0 analysis.

##### **Calibrations:**

Calibrations were performed according to the methods for the initial calibration and the initial calibration verification. The initial calibration verification is prepared from a second source standard.

##### **Blanks:**

No target analyte was detected above the reporting limits in the method blanks.

##### **Spikes:**

Laboratory Control Spikes (LCS/LCSD) and Sample Duplicates were used for quality assurance. All recoveries met acceptance criteria.

Sample 86-WOPT-111 was designated by the client for MS/MSD analysis. All recoveries met acceptance criteria.

#### **Summary:**

No analytical exception is noted.

## **CERTIFICATION**

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the hard copy has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

\_\_\_\_\_  
Leonard Fong, Ph.D, Laboratory Director / Date

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.066D WATS Bldg 88 Moffett Airfield

ARF: 47294

Sample ID: 86-WOPT-123

APPL ID: AX18972

Sample Collection Date: 4/28/05

OCG: SC42VT-050510AM-87204

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	5/10/05	5/10/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	5/10/05	5/10/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	0.5	0.21	ug/L	5/10/05	5/10/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	5/10/05	5/10/05
CLP VOL	1,1-Dichloroethane	Not detected	0.5	0.19	ug/L	5/10/05	5/10/05
CLP VOL	1,1-Dichloroethene	Not detected	0.5	0.30	ug/L	5/10/05	5/10/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	5/10/05	5/10/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	5/10/05	5/10/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	5/10/05	5/10/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	5/10/05	5/10/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	5/10/05	5/10/05
CLP VOL	Acetone	3.0 J	5	0.95	ug/L	5/10/05	5/10/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	5/10/05	5/10/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	5/10/05	5/10/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	5/10/05	5/10/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	5/10/05	5/10/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	5/10/05	5/10/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	5/10/05	5/10/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	5/10/05	5/10/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	5/10/05	5/10/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	5/10/05	5/10/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	5/10/05	5/10/05
CLP VOL	cis-1,2-Dichloroethene	0.31 J	0.5	0.16	ug/L	5/10/05	5/10/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	5/10/05	5/10/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	5/10/05	5/10/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	5/10/05	5/10/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	5/10/05	5/10/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	5/10/05	5/10/05
CLP VOL	Methylene Chloride	0.72 B	0.5	0.35	ug/L	5/10/05	5/10/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	5/10/05	5/10/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	5/10/05	5/10/05

J = Estimated value, below quantitation limit.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0510M16  
Instrument: Max  
Sequence: M050501  
Dilution Factor: 1  
Initials: LF

Printed: 5/23/05 12:52:12 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1590 086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-123

Sample Collection Date: 4/28/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47294

APPL ID: AX18972

QCG: SC42vT-050510AM-87204

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	Not detected	0.5	0.15	ug/L	5/10/05	5/10/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	5/10/05	5/10/05
CLP VOL	trans-1,2-Dichloroethene	Not detected	0.5	0.19	ug/L	5/10/05	5/10/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.13	ug/L	5/10/05	5/10/05
CLP VOL	Trichloroethene	2.1	0.5	0.16	ug/L	5/10/05	5/10/05
CLP VOL	Vinyl Chloride	Not detected	0.5	0.23	ug/L	5/10/05	5/10/05
CLP VOL	Surrogate Recovery (BFB)	100	75-125		%	5/10/05	5/10/05
CLP VOL	Surrogate Recovery (DCA)	99.5	62-139		%	5/10/05	5/10/05
CLP VOL	Surrogate Recovery (TOL)	100	75-125		%	5/10/05	5/10/05

J = Estimated value, below quantitation limit.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0510M16  
Instrument: Max  
Sequence: M050501  
Dilution Factor: 1  
Initials: LF

Printed: 5/23/05 12:52:12 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Benkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF 47294

Sample ID: 86-WOPT-110

APPL ID: AX18973

Sample Collection Date: 4/28/05

QCG: SC42VT-050510AM-87204

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	5/10/05	5/10/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	5/10/05	5/10/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	8.3	0.5	0.21	ug/L	5/10/05	5/10/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	5/10/05	5/10/05
CLP VOL	1,1-Dichloroethane	12	0.5	0.19	ug/L	5/10/05	5/10/05
CLP VOL	1,1-Dichloroethene	31	0.5	0.30	ug/L	5/10/05	5/10/05
CLP VOL	1,2-Dichloroethane	2.6	0.5	0.14	ug/L	5/10/05	5/10/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	5/10/05	5/10/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	5/10/05	5/10/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	5/10/05	5/10/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	5/10/05	5/10/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	5/10/05	5/10/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	5/10/05	5/10/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	5/10/05	5/10/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	5/10/05	5/10/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	5/10/05	5/10/05
CLP VOL	Carbon Disulfide	0.23 J	0.5	0.2	ug/L	5/10/05	5/10/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	5/10/05	5/10/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	5/10/05	5/10/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	5/10/05	5/10/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	5/10/05	5/10/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	5/10/05	5/10/05
CLP VOL	cis-1,2-Dichloroethene	1700 E	0.5	0.16	ug/L	5/10/05	5/10/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	5/10/05	5/10/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	5/10/05	5/10/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	5/10/05	5/10/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	5/10/05	5/10/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	5/10/05	5/10/05
CLP VOL	Methylene Chloride	0.73 B	0.5	0.35	ug/L	5/10/05	5/10/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	5/10/05	5/10/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	5/10/05	5/10/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0510M17

Instrument: Max

Sequence: M050501

Dilution Factor: 1

Initials: LF

Printed: 5/23/05 12:52 12 PM

APPL-F1-SC-MCRes/MCP-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deerc Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-110

Sample Collection Date: 4/28/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47294

APPL ID: AX18973

QCG: SC42VT-050510AM-87204

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	Not detected	0.5	0.15	ug/L	5/10/05	5/10/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	5/10/05	5/10/05
CLP VOL	trans-1,2-Dichloroethene	14	0.5	0.19	ug/L	5/10/05	5/10/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	5/10/05	5/10/05
CLP VOL	Trichloroethene	8.9	0.5	0.16	ug/L	5/10/05	5/10/05
CLP VOL	Vinyl Chloride	3.7	0.5	0.23	ug/L	5/10/05	5/10/05
CLP VOL	Surrogate Recovery (BFB)	98.3	75-125		%	5/10/05	5/10/05
CLP VOL	Surrogate Recovery (DCA)	99.9	62-139		%	5/10/05	5/10/05
CLP VOL	Surrogate Recovery (TOL)	98.7	75-125		%	5/10/05	5/10/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0510M17  
Instrument: Max  
Sequence: M050501  
Dilution Factor: 1  
Initials: LF

Printed: 5/23/05 12:52:12 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-110**

Sample Collection Date: 4/28/05

ARF: 47294

**APPL ID: AX18973**

OCG: SC42VD-050512AH-86770

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	1700	100	32.00	ug/L	5/12/05	5/12/05
CLP VOL	Surrogate Recovery (BFB)	125	75-125		%	5/12/05	5/12/05
CLP VOL	Surrogate Recovery (DCA)	104	62-139		%	5/12/05	5/12/05
CLP VOL	Surrogate Recovery (TOL)	129 #	75-125		%	5/12/05	5/12/05

# = Recovery (or RPD) is outside QC limits.

Run #: 0512H05  
Instrument: HEWEY  
Sequence: H050509  
Dilution Factor: 200  
Initials: LF

Printed: 5/23/05 12:52:12 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



# CLP Volatiles Water

Tetra Tech FW, Inc  
1540 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Benkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-1C8

Sample Collection Date: 4/28/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF. 47294

APPL ID: AX18974

QCG: SC42VT-050510AM-87204

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	0.50	0.5	0.14	ug/L	5/10/05	5/10/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	5/10/05	5/10/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	26	0.5	0.21	ug/L	5/10/05	5/10/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	5/10/05	5/10/05
CLP VOL	1,1-Dichloroethane	14	0.5	0.19	ug/L	5/10/05	5/10/05
CLP VOL	1,1-Dichloroethene	36	0.5	0.30	ug/L	5/10/05	5/10/05
CLP VOL	1,2-Dichloroethane	1.6	0.5	0.14	ug/L	5/10/05	5/10/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	5/10/05	5/10/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	5/10/05	5/10/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	5/10/05	5/10/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	5/10/05	5/10/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	5/10/05	5/10/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	5/10/05	5/10/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	5/10/05	5/10/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	5/10/05	5/10/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	5/10/05	5/10/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	5/10/05	5/10/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	5/10/05	5/10/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	5/10/05	5/10/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	5/10/05	5/10/05
CLP VOL	Chloroform	0.21 J	0.5	0.16	ug/L	5/10/05	5/10/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	5/10/05	5/10/05
CLP VOL	cis-1,2-Dichloroethene	900 E	0.5	0.16	ug/L	5/10/05	5/10/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	5/10/05	5/10/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	5/10/05	5/10/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	5/10/05	5/10/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	5/10/05	5/10/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	5/10/05	5/10/05
CLP VOL	Methylene Chloride	0.75 B	0.5	0.35	ug/L	5/10/05	5/10/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	5/10/05	5/10/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	5/10/05	5/10/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0510M18  
Instrument: Max  
Sequence: M050501  
Dilution Factor: 1  
Initials: LF

Printed 5/23/05 12:52:12 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Brenkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WCPT-108

Sample Collection Date: 4/28/05

APPL Inc  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47294

APPL ID: AX18974

QCG: SC42VT-050510AM-87204

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	6.5	0.5	0.15	ug/L	5/10/05	5/10/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	5/10/05	5/10/05
CLP VOL	trans-1,2-Dichloroethene	5.4	0.5	0.19	ug/L	5/10/05	5/10/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	5/10/05	5/10/05
CLP VOL	Trichloroethene	1400 E	0.5	0.16	ug/L	5/10/05	5/10/05
CLP VOL	Vinyl Chloride	4.0	0.5	0.23	ug/L	5/10/05	5/10/05
CLP VOL	Surrogate Recovery (BFB)	97.9	75-125		%	5/10/05	5/10/05
CLP VOL	Surrogate Recovery (DCA)	98.1	62-139		%	5/10/05	5/10/05
CLP VOL	Surrogate Recovery (TOL)	102	75-125		%	5/10/05	5/10/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0510M18  
Instrument: Max  
Sequence: M050501  
Dilution Factor: 1  
Initials: LF

Printed: 5/23/05 12:52:12 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47294

Sample ID: 86-WCPT-108

APPL ID: AX18974

Sample Collection Date: 4/28/05

OCG: SC42VD-050512AH-86770

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	790	100	32.00	ug/L	5/12/05	5/12/05
CLP VOL	Trichloroethene	1300	100	32.00	ug/L	5/12/05	5/12/05
CLP VOL	Surrogate Recovery (BFB)	122	75-125		%	5/12/05	5/12/05
CLP VOL	Surrogate Recovery (DCA)	103	62-139		%	5/12/05	5/12/05
CLP VOL	Surrogate Recovery (TOL)	125	75-125		%	5/12/05	5/12/05

Run #: 0512H06  
Instrument: HEWEY  
Sequence: H050509  
Dilution Factor: 200  
Initials: LF

Printed: 5/23/05 12:52:12 PM  
APPL-F1-SC-MCRes\MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF. 47234

Sample ID: 86-WOPT-109

APPL ID: AX18975

Sample Collection Date: 4/28/05

QCG: SC42VT-050510AM-87204

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	0.53	0.5	0.14	ug/L	5/11/05	5/11/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	5/11/05	5/11/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	24	0.5	0.21	ug/L	5/11/05	5/11/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	5/11/05	5/11/05
CLP VOL	1,1-Dichloroethane	14	0.5	0.19	ug/L	5/11/05	5/11/05
CLP VOL	1,1-Dichloroethene	34	0.5	0.30	ug/L	5/11/05	5/11/05
CLP VOL	1,2-Dichloroethane	1.5	0.5	0.14	ug/L	5/11/05	5/11/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	5/11/05	5/11/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	5/11/05	5/11/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	5/11/05	5/11/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	5/11/05	5/11/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	5/11/05	5/11/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	5/11/05	5/11/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	5/11/05	5/11/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	5/11/05	5/11/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	5/11/05	5/11/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	5/11/05	5/11/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	5/11/05	5/11/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	5/11/05	5/11/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	5/11/05	5/11/05
CLP VOL	Chloroform	0.21 J	0.5	0.16	ug/L	5/11/05	5/11/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	5/11/05	5/11/05
CLP VOL	cis-1,2-Dichloroethene	860 E	0.5	0.16	ug/L	5/11/05	5/11/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	5/11/05	5/11/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	5/11/05	5/11/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	5/11/05	5/11/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	5/11/05	5/11/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	5/11/05	5/11/05
CLP VOL	Methylene Chloride	0.73 B	0.5	0.35	ug/L	5/11/05	5/11/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	5/11/05	5/11/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	5/11/05	5/11/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0510M19

Instrument: Max

Sequence: M050501

Dilution Factor: 1

Initials: LF

Printed 5/23/05 12:52:12 PM

APPL F1-SC-MCRes\MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-109

Sample Collection Date: 4/28/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47294

APPL ID: AX18975

QCG: SC42VT-050510AM-87204

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	6.3	0.5	0.15	ug/L	5/11/05	5/11/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	5/11/05	5/11/05
CLP VOL	trans-1,2-Dichloroethene	5.0	0.5	0.19	ug/L	5/11/05	5/11/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	5/11/05	5/11/05
CLP VOL	Trichloroethene	1500 E	0.5	0.16	ug/L	5/11/05	5/11/05
CLP VOL	Vinyl Chloride	3.6	0.5	0.23	ug/L	5/11/05	5/11/05
CLP VOL	Surrogate Recovery (BFB)	97.3	75-125		%	5/11/05	5/11/05
CLP VOL	Surrogate Recovery (DCA)	93.3	62-139		%	5/11/05	5/11/05
CLP VOL	Surrogate Recovery (TOL)	102	75-125		%	5/11/05	5/11/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.  
B = The analyte was found in a method blank, as well as in the sample.

Run #: 0510M19  
Instrument: Max  
Sequence: M050501  
Dilution Factor: 1  
Initials: LF

Printed: 5/23/05 12:52:12 PM  
APPL F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-109

Sample Collection Date: 4/28/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47294

APPL ID: AX18975

QCG: SC42VD-050512AH-66770

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	800	100	32.00	ug/L	5/12/05	5/12/05
CLP VOL	Trichloroethene	1300	100	32.00	ug/L	5/12/05	5/12/05
CLP VOL	Surrogate Recovery (BFB)	128 #	75-125		%	5/12/05	5/12/05
CLP VOL	Surrogate Recovery (DCA)	105	62-139		%	5/12/05	5/12/05
CLP VOL	Surrogate Recovery (TOL)	132 #	75-125		%	5/12/05	5/12/05

# = Recovery (or RPD) is outside QC limits.

Run #: 0512H07  
Instrument: HEWEY  
Sequence: H050509  
Dilution Factor: 200  
Initials: LF

Printed: 5/23/05 12:52:12 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Blenkowski

Project: 1990.085D WATS Bldg 88 Moffett Airfield

ARF: 47294

Sample ID: 86-WOPT-111

APPL ID: AX18976

Sample Collection Date: 4/26/05

CCG: C42VT-050510BM-87208

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	0.27 J	0.5	0.14	ug/L	5/11/05	5/11/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	5/11/05	5/11/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	8.1	0.5	0.21	ug/L	5/11/05	5/11/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	5/11/05	5/11/05
CLP VOL	1,1-Dichloroethane	12	0.5	0.19	ug/L	5/11/05	5/11/05
CLP VOL	1,1-Dichloroethene	19	0.5	0.30	ug/L	5/11/05	5/11/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	5/11/05	5/11/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	5/11/05	5/11/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	5/11/05	5/11/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	5/11/05	5/11/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	5/11/05	5/11/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	5/11/05	5/11/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	5/11/05	5/11/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	5/11/05	5/11/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	5/11/05	5/11/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	5/11/05	5/11/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	5/11/05	5/11/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	5/11/05	5/11/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	5/11/05	5/11/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	5/11/05	5/11/05
CLP VOL	Chloroform	1.4	0.5	0.16	ug/L	5/11/05	5/11/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	5/11/05	5/11/05
CLP VOL	cis-1,2-Dichloroethene	340 E	0.5	0.16	ug/L	5/11/05	5/11/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	5/11/05	5/11/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	5/11/05	5/11/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	5/11/05	5/11/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	5/11/05	5/11/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	5/11/05	5/11/05
CLP VOL	Methylene Chloride	0.56 B	0.5	0.35	ug/L	5/11/05	5/11/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	5/11/05	5/11/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	5/11/05	5/11/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0510M29  
Instrument: Max  
Sequence: M050501  
Dilution Factor: 1  
Initials: LF

Printed: 5/23/05 12:52:12 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech F.W., Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990 068D WATS Bldg 58 Moffett Airfield

ARF: 47294

Sample ID: 86-WOPT-111

APPL ID: AX18976

Sample Collection Date: 4/28/05

OCG: SC42VT-050510BM-87208

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	Not detected	0.5	0.15	ug/L	5/11/05	5/11/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	5/11/05	5/11/05
CLP VOL	trans-1,2-Dichloroethene	1.8	0.5	0.19	ug/L	5/11/05	5/11/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	5/11/05	5/11/05
CLP VOL	Trichloroethene	380 E	0.5	0.16	ug/L	5/11/05	5/11/05
CLP VOL	Vinyl Chloride	1.7	0.5	0.23	ug/L	5/11/05	5/11/05
CLP VOL	Surrogate Recovery (BFB)	95.2	75-125		%	5/11/05	5/11/05
CLP VOL	Surrogate Recovery (DCA)	104	62-139		%	5/11/05	5/11/05
CLP VOL	Surrogate Recovery (TOL)	96.5	75-125		%	5/11/05	5/11/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0510M29  
Instrument: Max  
Sequence: M050501  
Dilution Factor: 1  
Initials: LF

Printed 5/23/05 12:52:12 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WCPT-111

Sample Collection Date: 4/28/05

APPL Inc  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47294

APPL ID: AX18976

QCG: SC42VD-050512AH-86770

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1-Dichloroethene	17	12.5	7.50	ug/L	5/12/05	5/12/05
CLP VOL	Benzene	Not detected	12.5	4.00	ug/L	5/12/05	5/12/05
CLP VOL	Chlorobenzene	Not detected	12.5	5.25	ug/L	5/12/05	5/12/05
CLP VOL	cis-1,2-Dichloroethene	290	12.5	4.00	ug/L	5/12/05	5/12/05
CLP VOL	Toluene	Not detected	12.5	4.25	ug/L	5/12/05	5/12/05
CLP VOL	Trichloroethene	340	12.5	4.00	ug/L	5/12/05	5/12/05
CLP VOL	Surrogate Recovery (BFB)	131 #	75-125		%	5/12/05	5/12/05
CLP VOL	Surrogate Recovery (DCA)	102	62-139		%	5/12/05	5/12/05
CLP VOL	Surrogate Recovery (TOL)	137 #	75-125		%	5/12/05	5/12/05

# = Recovery (or RPD) is outside QC limits.

Run #: 0512H08  
Instrument: HEWEY  
Sequence: H050509  
Dilution Factor: 25  
Initials: LF

Printed 5/23/05 2:40:29 PM  
APPL-F1-SC-MCRes:MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FV, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lise Bienkowski

Project: 1990.086D WATS Bldg 83 Moffett Airfield

ARF: 47294

Sample ID: 86-WOPT-119

APPL ID: AX18977

Sample Collection Date: 4/28/05

QCG: SC42VT-050510BM-87208

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	5/11/05	5/11/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	5/11/05	5/11/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	0.5	0.21	ug/L	5/11/05	5/11/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	5/11/05	5/11/05
CLP VOL	1,1-Dichloroethane	Not detected	0.5	0.19	ug/L	5/11/05	5/11/05
CLP VOL	1,1-Dichloroethene	Not detected	0.5	0.30	ug/L	5/11/05	5/11/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	5/11/05	5/11/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	5/11/05	5/11/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	5/11/05	5/11/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	5/11/05	5/11/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	5/11/05	5/11/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	5/11/05	5/11/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	5/11/05	5/11/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	5/11/05	5/11/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	5/11/05	5/11/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	5/11/05	5/11/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	5/11/05	5/11/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	5/11/05	5/11/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	5/11/05	5/11/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	5/11/05	5/11/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	5/11/05	5/11/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	5/11/05	5/11/05
CLP VOL	cis-1,2-Dichloroethene	0.28 J	0.5	0.16	ug/L	5/11/05	5/11/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	5/11/05	5/11/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	5/11/05	5/11/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	5/11/05	5/11/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	5/11/05	5/11/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	5/11/05	5/11/05
CLP VOL	Methylene Chloride	0.60 B	0.5	0.35	ug/L	5/11/05	5/11/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	5/11/05	5/11/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	5/11/05	5/11/05

J = Estimated value, below quantitation limit.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0510M30  
Instrument: Max  
Sequence: M050501  
Dilution Factor: 1  
Initials: LF

Printed: 5/23/05 12:52:12 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 58 Moffett Airfield

Sample ID: 86-WOPT-119

Sample Collection Date: 4/28/05

ARF 47294

APPL ID: AX18977

QCG: SC42VT-050510BM-87203

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	Not detected	0.5	0.15	ug/L	5/11/05	5/11/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	5/11/05	5/11/05
CLP VOL	trans-1,2-Dichloroethene	Not detected	0.5	0.19	ug/L	5/11/05	5/11/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	5/11/05	5/11/05
CLP VOL	Trichloroethene	0.52	0.5	0.16	ug/L	5/11/05	5/11/05
CLP VOL	Vinyl Chloride	Not detected	0.5	0.23	ug/L	5/11/05	5/11/05
CLP VOL	Surrogate Recovery (BFB)	92.3	75-125		%	5/11/05	5/11/05
CLP VOL	Surrogate Recovery (DCA)	97.1	62-139		%	5/11/05	5/11/05
CLP VOL	Surrogate Recovery (TOL)	99.6	75-125		%	5/11/05	5/11/05

J = Estimated value, below quantitation limit.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0510M30  
Instrument: Max  
Sequence: M050501  
Dilution Factor: 1  
Initials: LF

Printed: 5/23/05 12:52:12 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tella Tech FW, Inc.  
1940 E Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47294

Sample ID: 86-WOPT-115

APPL ID: AX18978

Sample Collection Date: 4/23/05

QCG: SC42VT-050510BM-87208

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	2.3	0.5	0.14	ug/L	5/11/05	5/11/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	5/11/05	5/11/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	11	0.5	0.21	ug/L	5/11/05	5/11/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	5/11/05	5/11/05
CLP VOL	1,1-Dichloroethane	11	0.5	0.19	ug/L	5/11/05	5/11/05
CLP VOL	1,1-Dichloroethene	19	0.5	0.30	ug/L	5/11/05	5/11/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	5/11/05	5/11/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	5/11/05	5/11/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	5/11/05	5/11/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	5/11/05	5/11/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	5/11/05	5/11/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	5/11/05	5/11/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	5/11/05	5/11/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	5/11/05	5/11/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	5/11/05	5/11/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	5/11/05	5/11/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	5/11/05	5/11/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	5/11/05	5/11/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	5/11/05	5/11/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	5/11/05	5/11/05
CLP VOL	Chloroform	0.56	0.5	0.16	ug/L	5/11/05	5/11/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	5/11/05	5/11/05
CLP VOL	cis-1,2-Dichloroethene	250 E	0.5	0.16	ug/L	5/11/05	5/11/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	5/11/05	5/11/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	5/11/05	5/11/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	5/11/05	5/11/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	5/11/05	5/11/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	5/11/05	5/11/05
CLP VOL	Methylene Chloride	0.58 B	0.5	0.35	ug/L	5/11/05	5/11/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	5/11/05	5/11/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	5/11/05	5/11/05

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0510M31

Instrument: Max

Sequence: M050501

Dilution Factor: 1

Initials: LF

Printed: 5/23/05 12:52:12 PM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.036D WATS Bldg 88 Moffett Airfield

Sample ID: **86-WOPT-115**

Sample Collection Date: 4/28/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47294

APPL ID: **AX18973**

QCG: SC42VT-050510BM-87208

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	12	0.5	0.15	ug/L	5/11/05	5/11/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	5/11/05	5/11/05
CLP VOL	trans-1,2-Dichloroethene	1.9	0.5	0.19	ug/L	5/11/05	5/11/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	5/11/05	5/11/05
CLP VOL	Trichloroethene	1200 E	0.5	0.16	ug/L	5/11/05	5/11/05
CLP VOL	Vinyl Chloride	5.5	0.5	0.23	ug/L	5/11/05	5/11/05
CLP VOL	Surrogate Recovery (BFB)	92.5	75-125		%	5/11/05	5/11/05
CLP VOL	Surrogate Recovery (DCA)	102	62-139		%	5/11/05	5/11/05
CLP VOL	Surrogate Recovery (TOL)	96.9	75-125		%	5/11/05	5/11/05

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0510M31  
Instrument: Max  
Sequence: M050501  
Dilution Factor: 1  
Initials: LF

Printed 5/23/05 12:52:13 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.065D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-115

Sample Collection Date: 4/28/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47254

APPL ID: AX18978

QCG: SC42VD-050512AH-86770

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	240	50	16.00	ug/L	5/12/05	5/12/05
CLP VOL	Trichloroethene	1100	50	16.00	ug/L	5/12/05	5/12/05
CLP VOL	Surrogate Recovery (BFB)	128 #	75-125		%	5/12/05	5/12/05
CLP VOL	Surrogate Recovery (DCA)	102	62-139		%	5/12/05	5/12/05
CLP VOL	Surrogate Recovery (TOL)	133 #	75-125		%	5/12/05	5/12/05

# = Recovery (or RPD) is outside QC limits

Run #: 0512H09  
Instrument: HEWEY  
Sequence: H050509  
Dilution Factor: 100  
Initials: LF

Printed 5/23/05 12:52:12 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47294

Sample ID: 86-WOPT-114

APPL ID: AX18979

Sample Collection Date: 4/28/05

QCG: SC42VT-050510BM-87208

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	0.53	0.5	0.14	ug/L	5/11/05	5/11/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	5/11/05	5/11/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	74	0.5	0.21	ug/L	5/11/05	5/11/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	5/11/05	5/11/05
CLP VOL	1,1-Dichloroethane	11	0.5	0.19	ug/L	5/11/05	5/11/05
CLP VOL	1,1-Dichloroethene	48	0.5	0.30	ug/L	5/11/05	5/11/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	5/11/05	5/11/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	5/11/05	5/11/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	5/11/05	5/11/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	5/11/05	5/11/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	5/11/05	5/11/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	5/11/05	5/11/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	5/11/05	5/11/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	5/11/05	5/11/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	5/11/05	5/11/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	5/11/05	5/11/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	5/11/05	5/11/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	5/11/05	5/11/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	5/11/05	5/11/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	5/11/05	5/11/05
CLP VOL	Chloroform	0.52	0.5	0.16	ug/L	5/11/05	5/11/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	5/11/05	5/11/05
CLP VOL	cis-1,2-Dichloroethene	540 E	0.5	0.16	ug/L	5/11/05	5/11/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	5/11/05	5/11/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	5/11/05	5/11/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	5/11/05	5/11/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	5/11/05	5/11/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	5/11/05	5/11/05
CLP VOL	Methylene Chloride	0.61 B	0.5	0.35	ug/L	5/11/05	5/11/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	5/11/05	5/11/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	5/11/05	5/11/05

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0510M32

Instrument: Max

Sequence: M050501

Dilution Factor: 1

Initials: LF

Printed: 5/23/05 12:52:13 PM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.096D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-114

Sample Collection Date: 4/23/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47294

APPL ID: AX18979

QCG: SC42VT-050510BfM-87208

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	530 E	0.5	0.15	ug/L	5/11/05	5/11/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	5/11/05	5/11/05
CLP VOL	trans-1,2-Dichloroethene	2.8	0.5	0.19	ug/L	5/11/05	5/11/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	5/11/05	5/11/05
CLP VOL	Trichloroethene	2300 E	0.5	0.16	ug/L	5/11/05	5/11/05
CLP VOL	Vinyl Chloride	2.0	0.5	0.23	ug/L	5/11/05	5/11/05
CLP VOL	Surrogate Recovery (BFB)	94.3	75-125		%	5/11/05	5/11/05
CLP VOL	Surrogate Recovery (DCA)	103	62-139		%	5/11/05	5/11/05
CLP VOL	Surrogate Recovery (TOL)	96.1	75-125		%	5/11/05	5/11/05

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0510M32  
Instrument: Max  
Sequence: M050501  
Dilution Factor: 1  
Initials: LF

Printed: 5/23/05 12:52:13 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990 086D WATS Proj 88 Moffett Airfield

Sample ID: 86-WOPT-114

Sample Collection Date: 4/28/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47294

APPL ID: AX18979

QCG: SC42VD-050512AH-86770

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethane	530	250	80.00	ug/L	5/12/05	5/12/05
CLP VOL	Tetrachloroethene	490	250	75.00	ug/L	5/12/05	5/12/05
CLP VOL	Trichloroethene	3100	250	80.00	ug/L	5/12/05	5/12/05
CLP VOL	Surrogate Recovery (BFB)	130 #	75-125		%	5/12/05	5/12/05
CLP VOL	Surrogate Recovery (DCA)	104	62-139		%	5/12/05	5/12/05
CLP VOL	Surrogate Recovery (TOL)	135 #	75-125		%	5/12/05	5/12/05

# = Recovery (or RPD) is outside QC limits.

Run #: 0512H10  
Instrument: HEWEY  
Sequence: H050509  
Dilution Factor: 500  
Initials: LF

Printed: 5/23/05 12:52:13 PM  
APPL F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 38 Moffett Airfield

ARF: 47294

Sample ID: 86-WOPT-106

APPL ID: AX18980

Sample Collection Date: 4/28/05

QCG: SC42VT-050510BM-87208

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	0.74	0.5	0.14	ug/L	5/11/05	5/11/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	5/11/05	5/11/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	32	0.5	0.21	ug/L	5/11/05	5/11/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	5/11/05	5/11/05
CLP VOL	1,1-Dichloroethane	13	0.5	0.19	ug/L	5/11/05	5/11/05
CLP VOL	1,1-Dichloroethene	35	0.5	0.30	ug/L	5/11/05	5/11/05
CLP VOL	1,2-Dichloroethane	0.61	0.5	0.14	ug/L	5/11/05	5/11/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	5/11/05	5/11/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	5/11/05	5/11/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	5/11/05	5/11/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	5/11/05	5/11/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	5/11/05	5/11/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	5/11/05	5/11/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	5/11/05	5/11/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	5/11/05	5/11/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	5/11/05	5/11/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	5/11/05	5/11/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	5/11/05	5/11/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	5/11/05	5/11/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	5/11/05	5/11/05
CLP VOL	Chloroform	0.27 J	0.5	0.16	ug/L	5/11/05	5/11/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	5/11/05	5/11/05
CLP VOL	cis-1,2-Dichloroethene	540 E	0.5	0.16	ug/L	5/11/05	5/11/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	5/11/05	5/11/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	5/11/05	5/11/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	5/11/05	5/11/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	5/11/05	5/11/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	5/11/05	5/11/05
CLP VOL	Methylene Chloride	0.60 B	0.5	0.35	ug/L	5/11/05	5/11/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	5/11/05	5/11/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	5/11/05	5/11/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.  
B = The analyte was found in a method blank, as well as in the sample.

Run #: 0510M33  
Instrument: Max  
Sequence: M050501  
Dilution Factor: 1  
Initials: LF

Printed: 5/23/05 12:52:13 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-106

Sample Collection Date: 4/28/05

ARF. 47294

APPL ID: AX18980

QCG: SC42VT-050510BM-87208

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	1.9	0.5	0.15	ug/L	5/11/05	5/11/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	5/11/05	5/11/05
CLP VOL	trans-1,2-Dichloroethene	7.4	0.5	0.19	ug/L	5/11/05	5/11/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	5/11/05	5/11/05
CLP VOL	Trichloroethene	1800 E	0.5	0.16	ug/L	5/11/05	5/11/05
CLP VOL	Vinyl Chloride	15	0.5	0.23	ug/L	5/11/05	5/11/05
CLP VOL	Surrogate Recovery (BFB)	95.8	75-125		%	5/11/05	5/11/05
CLP VOL	Surrogate Recovery (DCA)	107	62-139		%	5/11/05	5/11/05
CLP VOL	Surrogate Recovery (TOL)	94.3	75-125		%	5/11/05	5/11/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.  
B = The analyte was found in a method blank, as well as in the sample.

Run #: 0510M33  
Instrument: Max  
Sequence: M050501  
Dilution Factor: 1  
Initials: LF

Printed: 5/23/05 12:52:13 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc  
1940 E Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Brenkowski

Project: 1999-086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-106

Sample Collection Date: 4/28/05

APPL Inc  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47294

APPL ID: AX18980

QCG: SC42VD-050512A-1-86770

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	490	100	32.00	ug/L	5/12/05	5/12/05
CLP VOL	Trichloroethene	1800	100	32.00	ug/L	5/12/05	5/12/05
CLP VOL	Surrogate Recovery (BFB)	129 #	75-125		%	5/12/05	5/12/05
CLP VOL	Surrogate Recovery (DCA)	102	62-139		%	5/12/05	5/12/05
CLP VOL	Surrogate Recovery (TOL)	136 #	75-125		%	5/12/05	5/12/05

# = Recovery (or RPD) is outside QC limits.

Run #: 0512H11  
Instrument: HEWEY  
Sequence: H050509  
Dilution Factor: 200  
Initials: LF

Printed: 5/23/05 12:52:13 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech F.W., Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-107

Sample Collection Date: 4/28/05

ARF: 47294

APPL ID: AX18981

QCG: SC42VT-050510BM-87208

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	0.84	0.5	0.14	ug/L	5/11/05	5/11/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	5/11/05	5/11/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	33	0.5	0.21	ug/L	5/11/05	5/11/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	5/11/05	5/11/05
CLP VOL	1,1-Dichloroethane	15	0.5	0.19	ug/L	5/11/05	5/11/05
CLP VOL	1,1-Dichloroethene	36	0.5	0.30	ug/L	5/11/05	5/11/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	5/11/05	5/11/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	5/11/05	5/11/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	5/11/05	5/11/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	5/11/05	5/11/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	5/11/05	5/11/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	5/11/05	5/11/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	5/11/05	5/11/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	5/11/05	5/11/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	5/11/05	5/11/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	5/11/05	5/11/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	5/11/05	5/11/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	5/11/05	5/11/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	5/11/05	5/11/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	5/11/05	5/11/05
CLP VOL	Chloroform	0.26 J	0.5	0.16	ug/L	5/11/05	5/11/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	5/11/05	5/11/05
CLP VOL	cis-1,2-Dichloroethene	530 E	0.5	0.16	ug/L	5/11/05	5/11/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	5/11/05	5/11/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	5/11/05	5/11/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	5/11/05	5/11/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	5/11/05	5/11/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	5/11/05	5/11/05
CLP VOL	Methylene Chloride	0.62 B	0.5	0.35	ug/L	5/11/05	5/11/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	5/11/05	5/11/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	5/11/05	5/11/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0510M34

Instrument: Max

Sequence: M050501

Dilution Factor: 1

Initials: LF

Printed 5/23/05 12:52:13 PM

APPL-F1-SC-MCRRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-107

Sample Collection Date: 4/28/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47294

APPL ID: AX18981

QCG: SC42VT-05C510EM-87208

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	1.3	0.5	0.15	ug/L	5/11/05	5/11/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	5/11/05	5/11/05
CLP VOL	trans-1,2-Dichloroethene	7.3	0.5	0.19	ug/L	5/11/05	5/11/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	5/11/05	5/11/05
CLP VOL	Trichloroethene	1800 E	0.5	0.16	ug/L	5/11/05	5/11/05
CLP VOL	Vinyl Chloride	15	0.5	0.23	ug/L	5/11/05	5/11/05
CLP VOL	Surrogate Recovery (BFB)	95.0	75-125		%	5/11/05	5/11/05
CLP VOL	Surrogate Recovery (DCA)	101	62-139		%	5/11/05	5/11/05
CLP VOL	Surrogate Recovery (TOL)	99.3	75-125		%	5/11/05	5/11/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0510M34  
Instrument: Max  
Sequence: M050501  
Dilution Factor: 1  
Initials: LF

Printed 5/23/05 12:52:13 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bierkowski

Project: 1990.086D WATS Bldg 08 Moffett Airfield

Sample ID: 86-WOPT-107

Sample Collection Date: 4/26/05

APPL Inc  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47294

APPL ID: AX18981

QC/G: SC42VD-050512AH-86770

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	500	100	32.00	ug/L	5/12/05	5/12/05
CLP VOL	Trichloroethene	1800	100	32.00	ug/L	5/12/05	5/12/05
CLP VOL	Surrogate Recovery (BFB)	130 #	75-125		%	5/12/05	5/12/05
CLP VOL	Surrogate Recovery (DCA)	102	62-139		%	5/12/05	5/12/05
CLP VOL	Surrogate Recovery (TOL)	139 #	75-125		%	5/12/05	5/12/05

# = Recovery (or RPD) is outside QC limits.

Run #: 0512H12  
Instrument: HEWEY  
Sequence: H050509  
Dilution Factor: 200  
Initials: LF

Printed 5/23/05 12:52:13 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1930.096D WATS Bldg 98 Moffett Airfield

Sample ID: 86-WOPT-105

Sample Collection Date: 4/28/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47294

APPL ID: AX18982

QCG: SC42VT-050510BM-87208

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	5/11/05	5/11/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	5/11/05	5/11/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	6.3	0.5	0.21	ug/L	5/11/05	5/11/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	5/11/05	5/11/05
CLP VOL	1,1-Dichloroethane	11	0.5	0.19	ug/L	5/11/05	5/11/05
CLP VOL	1,1-Dichloroethene	13	0.5	0.30	ug/L	5/11/05	5/11/05
CLP VOL	1,2-Dichloroethane	0.67	0.5	0.14	ug/L	5/11/05	5/11/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	5/11/05	5/11/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	5/11/05	5/11/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	5/11/05	5/11/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	5/11/05	5/11/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	5/11/05	5/11/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	5/11/05	5/11/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	5/11/05	5/11/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	5/11/05	5/11/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	5/11/05	5/11/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	5/11/05	5/11/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	5/11/05	5/11/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	5/11/05	5/11/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	5/11/05	5/11/05
CLP VOL	Chloroform	0.34 J	0.5	0.16	ug/L	5/11/05	5/11/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	5/11/05	5/11/05
CLP VOL	cis-1,2-Dichloroethene	790 E	0.5	0.16	ug/L	5/11/05	5/11/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	5/11/05	5/11/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	5/11/05	5/11/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	5/11/05	5/11/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	5/11/05	5/11/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	5/11/05	5/11/05
CLP VOL	Methylene Chloride	0.58 B	0.5	0.35	ug/L	5/11/05	5/11/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	5/11/05	5/11/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	5/11/05	5/11/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0510M35  
Instrument: Max  
Sequence: M050501  
Dilution Factor: 1  
Initials: LF

Printed: 5/23/05 12:52:13 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-105

Sample Collection Date: 4/28/05

ARF: 47294

APPL ID: AX18362

QCG: SC42VT-050510BM-87203

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	49	0.5	0.15	ug/L	5/11/05	5/11/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	5/11/05	5/11/05
CLP VOL	trans-1,2-Dichloroethene	6.1	0.5	0.19	ug/L	5/11/05	5/11/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	5/11/05	5/11/05
CLP VOL	Trichloroethene	190 E	0.5	0.16	ug/L	5/11/05	5/11/05
CLP VOL	Vinyl Chloride	2.0	0.5	0.23	ug/L	5/11/05	5/11/05
CLP VOL	Surrogate Recovery (BFB)	91.5	75-125		%	5/11/05	5/11/05
CLP VOL	Surrogate Recovery (DCA)	101	62-139		%	5/11/05	5/11/05
CLP VOL	Surrogate Recovery (TOL)	96.7	75-125		%	5/11/05	5/11/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.  
B = The analyte was found in a method blank, as well as in the sample.

Run #: 0510M35  
Instrument: Max  
Sequence: M050501  
Dilution Factor: 1  
Initials: LF

Printed: 5/23/05 12:52:13 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Brenkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-105

Sample Collection Date: 4/28/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47294

APPL ID: AX18982

QCG: SC42VD-050512AH-86770

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	750	50	16.00	ug/L	5/12/05	5/12/05
CLP VOL	Trichloroethene	180	50	16.00	ug/L	5/12/05	5/12/05
CLP VOL	Surrogate Recovery (BFB)	127 #	75-125		%	5/12/05	5/12/05
CLP VOL	Surrogate Recovery (DCA)	100	62-139		%	5/12/05	5/12/05
CLP VOL	Surrogate Recovery (TOL)	133 #	75-125		%	5/12/05	5/12/05

# = Recovery (or RPD) is outside QC limits.

Run #: 0512H13  
Instrument: HEWEY  
Sequence: H050509  
Dilution Factor: 100  
Initials: LF

Printed: 5/23/05 12:52:13 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech, FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 86 Moffett Airfield

ARF: 47294

Sample ID: 86-WOPT-116

APPL ID: AX18983

Sample Collection Date: 4/28/05

CCG: SC42VT-050510BM-67202

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	5/11/05	5/11/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	5/11/05	5/11/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	0.5	0.21	ug/L	5/11/05	5/11/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	5/11/05	5/11/05
CLP VOL	1,1-Dichloroethane	Not detected	0.5	0.13	ug/L	5/11/05	5/11/05
CLP VOL	1,1-Dichloroethene	Not detected	0.5	0.30	ug/L	5/11/05	5/11/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	5/11/05	5/11/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	5/11/05	5/11/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	5/11/05	5/11/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	5/11/05	5/11/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	5/11/05	5/11/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	5/11/05	5/11/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	5/11/05	5/11/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	5/11/05	5/11/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	5/11/05	5/11/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	5/11/05	5/11/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	5/11/05	5/11/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	5/11/05	5/11/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	5/11/05	5/11/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	5/11/05	5/11/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	5/11/05	5/11/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	5/11/05	5/11/05
CLP VOL	cis-1,2-Dichloroethene	0.71	0.5	0.16	ug/L	5/11/05	5/11/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	5/11/05	5/11/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	5/11/05	5/11/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	5/11/05	5/11/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	5/11/05	5/11/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	5/11/05	5/11/05
CLP VOL	Methylene Chloride	0.58 B	0.5	0.35	ug/L	5/11/05	5/11/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	5/11/05	5/11/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	5/11/05	5/11/05

J = Estimated value, below quantitation limit.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0510M36

Instrument: Max

Sequence: M050501

Dilution Factor: 1

Initials: LF

Printed 5/23/05 12:52:13 PM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1290 086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-W/OPT-118

Sample Collection Date: 4/28/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47294

APPL ID: AX18983

QCG: SC42VT-050510EM-87228

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	0.17 J	0.5	0.15	ug/L	5/11/05	5/11/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	5/11/05	5/11/05
CLP VOL	trans-1,2-Dichloroethene	Not detected	0.5	0.19	ug/L	5/11/05	5/11/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	5/11/05	5/11/05
CLP VOL	Trichloroethene	1.1	0.5	0.16	ug/L	5/11/05	5/11/05
CLP VOL	Vinyl Chloride	Not detected	0.5	0.23	ug/L	5/11/05	5/11/05
CLP VOL	Surrogate Recovery (BFB)	92.4	75-125		%	5/11/05	5/11/05
CLP VOL	Surrogate Recovery (DCA)	105	62-139		%	5/11/05	5/11/05
CLP VOL	Surrogate Recovery (TOL)	93.4	75-125		%	5/11/05	5/11/05

J = Estimated value, below quantitation limit.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0510M36  
Instrument: Max  
Sequence: M050501  
Dilution Factor: 1  
Initials: LF

Printed 5/23/05 12:52:13 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Blenkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-110

Sample Collection Date: 4/28/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47294

APPL ID: AX18973

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	163	25	0.14	mg/L	5/2/05	5/20/05
6010B	Calcium (Ca)	144 E	5	0.0272	mg/L	5/2/05	5/19/05
601GB	Iron (Fe)	0.21	0.1	0.0258	mg/L	5/2/05	5/19/05
6010B	Magnesium (Mg)	50.3	5	0.0129	mg/L	5/2/05	5/19/05
6010B	Potassium (K)	1.7 J	5	0.0995	mg/L	5/2/05	5/19/05
6010B	Sodium (Na)	38.6	5	0.1111	mg/L	5/2/05	5/19/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

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L-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bidg 88 Moffett Airfield

Sample ID: 86-WOPT-108

Sample Collection Date: 4/28/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47294

APPL ID: AX18974

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	160	25	0.14	mg/L	5/2/05	5/20/05
6010B	Calcium (Ca)	144 E	5	0.0272	mg/L	5/2/05	5/19/05
6010B	Iron (Fe)	3.0	0.1	0.0258	mg/L	5/2/05	5/19/05
6010B	Magnesium (Mg)	50.1	5	0.0129	mg/L	5/2/05	5/19/05
6010B	Potassium (K)	1.7 J	5	0.0995	mg/L	5/2/05	5/19/05
6010B	Sodium (Na)	39.3	5	0.1111	mg/L	5/2/05	5/19/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

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2L-F1-SC-MCRes\MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski  
Project: 1990.066D WATS Bldg 88 Moffett Airfield

ARF: 47294

**Sample ID: 86-WOPT-109**

**APPL ID: AX18975**

Sample Collection Date: 4/28/05

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	98.6	5	0.0272	mg/L	5/2/05	5/19/05
6010B	Iron (Fe)	0.054 J	0.1	0.0258	mg/L	5/2/05	5/19/05
6010B	Magnesium (Mg)	39.5	5	0.0129	mg/L	5/2/05	5/19/05
6010B	Potassium (K)	2.1 J	5	0.0995	mg/L	5/2/05	5/19/05
6010B	Sodium (Na)	32.0	5	0.1111	mg/L	5/2/05	5/19/05

J = Estimated value, below quantitation limit.

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2L-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-111

Sample Collection Date: 4/28/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47294

APPL ID: AX18976

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	104	10	0.054	mg/L	5/2/05	5/20/05
6010B	Calcium (Ca)	104	5	0.0272	mg/L	5/2/05	5/19/05
6010B	Iron (Fe)	0.054 J	0.1	0.0258	mg/L	5/2/05	5/19/05
6010B	Magnesium (Mg)	40.6	5	0.0129	mg/L	5/2/05	5/19/05
6010B	Potassium (K)	2.0 J	5	0.0995	mg/L	5/2/05	5/19/05
6010B	Sodium (Na)	32.5	5	0.1111	mg/L	5/2/05	5/19/05

J = Estimated value, below quantitation limit.

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PL-F1-SC-MCRes/MCPQL-REG MDLs



## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-119

Sample Collection Date: 4/28/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47294

APPL ID: AX18977

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	40.1	5	0.0272	mg/L	5/2/05	5/19/05
6010B	Iron (Fe)	1.4	0.1	0.0258	mg/L	5/2/05	5/19/05
6010B	Magnesium (Mg)	17.8	5	0.0129	mg/L	5/2/05	5/19/05
6010B	Potassium (K)	0.82 J	5	0.0995	mg/L	5/2/05	5/19/05
6010B	Sodium (Na)	43.0	5	0.1111	mg/L	5/2/05	5/19/05

J = Estimated value, below quantitation limit.

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-115

Sample Collection Date: 4/28/05

ARF: 47294

APPL ID: AX16978

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	163	25	0.14	mg/L	5/2/05	5/20/05
6010B	Calcium (Ca)	143 E	5	0.0272	mg/L	5/2/05	5/20/05
6010B	Iron (Fe)	0.028 J	0.1	0.0258	mg/L	5/2/05	5/20/05
6010B	Magnesium (Mg)	51.5	5	0.0129	mg/L	5/2/05	5/20/05
6010B	Potassium (K)	1.4 J	5	0.0995	mg/L	5/2/05	5/20/05
6010B	Sodium (Na)	34.9	5	0.1111	mg/L	5/2/05	5/20/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

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2L-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-114

Sample Collection Date: 4/28/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47294

APPL ID: AX16979

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	179	25	0.14	mg/L	5/2/05	5/20/05
6010B	Calcium (Ca)	153 E	5	0.0272	mg/L	5/2/05	5/20/05
6010B	Iron (Fe)	17.5	0.1	0.0258	mg/L	5/2/05	5/20/05
6010B	Magnesium (Mg)	47.2	5	0.0129	mg/L	5/2/05	5/20/05
6010B	Potassium (K)	1.7 J	5	0.0995	mg/L	5/2/05	5/20/05
6010B	Sodium (Na)	34.0	5	0.1111	mg/L	5/2/05	5/20/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOFT-106

Sample Collection Date: 4/28/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47294

APPL ID: AX18980

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	159	5	0.14	mg/L	5/2/05	5/20/05
6010B	Calcium (Ca)	144 E	5	0.0272	mg/L	5/2/05	5/20/05
6010B	Iron (Fe)	Not detected	0.1	0.0258	mg/L	5/2/05	5/20/05
6010B	Magnesium (Mg)	46.8	5	0.0129	mg/L	5/2/05	5/20/05
6010B	Potassium (K)	1.6 J	5	0.0995	mg/L	5/2/05	5/20/05
6010B	Sodium (Na)	36.8	5	0.1111	mg/L	5/2/05	5/20/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

## Metals Analysis

Tetra Tech FVZ, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-107

Sample Collection Date: 4/28/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47294

APPL ID: AX18981

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	158	25	0.14	mg/L	5/2/05	5/20/05
6010B	Calcium (Ca)	146 E	5	0.0272	mg/L	5/2/05	5/20/05
6010B	Iron (Fe)	0.22	0.1	0.0258	mg/L	5/2/05	5/20/05
6010B	Magnesium (Mg)	48.0	5	0.0129	mg/L	5/2/05	5/20/05
6010B	Potassium (K)	1.6 J	5	0.0995	mg/L	5/2/05	5/20/05
6010B	Sodium (Na)	37.5	5	0.1111	mg/L	5/2/05	5/20/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

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2L-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-105

Sample Collection Date: 4/28/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47294

APPL ID: AX18982

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	160	25	0.14	mg/L	5/2/05	5/20/05
6010B	Calcium (Ca)	139 E	5	0.0272	mg/L	5/2/05	5/20/05
6010B	Iron (Fe)	Not detected	0.1	0.0258	mg/L	5/2/05	5/20/05
6010B	Magnesium (Mg)	61.2	5	0.0129	mg/L	5/2/05	5/20/05
6010B	Potassium (K)	1.2 J	5	0.0995	mg/L	5/2/05	5/20/05
6010B	Sodium (Na)	38.0	5	0.1111	mg/L	5/2/05	5/20/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

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PL-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: **86-WCPT-118**

Sample Collection Date: 4/28/05

ARF: 47294

APPL ID: **AX18983**

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	21.2	5	0.0272	mg/L	5/2/05	5/20/05
6010B	Iron (Fe)	1.6	0.1	0.0258	mg/L	5/2/05	5/20/05
6010B	Magnesium (Mg)	10.8	5	0.0129	mg/L	5/2/05	5/20/05
6010B	Potassium (K)	1.6 J	5	0.0995	mg/L	5/2/05	5/20/05
6010B	Sodium (Na)	53.5	25	0.56	mg/L	5/2/05	5/20/05
6010B	Sodium (Na)	51.8 E	5	0.1111	mg/L	5/2/05	5/20/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

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%L-F1-SC-MCR05/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-110

Sample Collection Date: 4/28/05

APPL ID: AX18973

ARF: 47234

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	43200	1000	80	ug/L	4/29/05	4/29/05
EPA 300.0	Nitrate	Not detected	200	15	ug/L	4/29/05	4/29/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/29/05	4/29/05
EPA 300.0	Sulfate	357000 E	1000	90	ug/L	4/29/05	4/29/05
EPA 300.0	Sulfate	299000	5000	450	ug/L	5/12/05	5/12/05
EPA 310.1	Bicarbonate	356	5	0.787	mg/L	5/10/05	5/10/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	5/10/05	5/10/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs



## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-108

Sample Collection Date: 4/28/05

APPL ID: AX18974

ARF: 47294

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	44200	1000	80	ug/L	4/29/05	4/29/05
EPA 300.0	Nitrate	3300	200	15	ug/L	4/29/05	4/29/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/29/05	4/29/05
EPA 300.0	Sulfate	287000	5000	450	ug/L	5/12/05	5/12/05
EPA 300.0	Sulfate	345000 E	1000	90	ug/L	4/29/05	4/29/05
EPA 310.1	Bicarbonate	350	5	0.787	mg/L	5/10/05	5/10/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	5/10/05	5/10/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bionkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-109

Sample Collection Date: 4/28/05

APPL ID: AX18975

ARF: 47294

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	44300	1000	80	ug/L	4/29/05	4/29/05
EPA 300.0	Nitrate	659 J	200	15	ug/L	4/29/05	4/29/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/29/05	4/29/05
EPA 300.0	Sulfate	345000 E	1000	90	ug/L	4/29/05	4/29/05
EPA 300.0	Sulfate	288000	5000	450	ug/L	5/12/05	5/12/05
EPA 310.1	Bicarbonate	352	5	0.787	mg/L	5/10/05	5/10/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	5/10/05	5/10/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

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APPL-F1-SC-MCRex/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-111

Sample Collection Date: 4/28/05

APPL ID: AX18976

ARF: 47294

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	16600	1000	80	ug/L	4/29/05	4/29/05
EPA 300.0	Nitrate	3290	200	15	ug/L	4/29/05	4/29/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/29/05	4/29/05
EPA 300.0	Sulfate	120000	5000	450	ug/L	5/12/05	5/12/05
EPA 300.0	Sulfate	139000 E	1000	90	ug/L	4/29/05	4/29/05
EPA 310.1	Bicarbonate	376	5	0.787	mg/L	5/10/05	5/10/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	5/10/05	5/10/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-119

Sample Collection Date: 4/28/05

APPL ID: AX18977

ARF: 47294

Method	Analyte	Result	FQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	17700	1000	80	ug/L	4/29/05	4/29/05
EPA 300.0	Nitrate	2960	200	15	ug/L	4/29/05	4/29/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/29/05	4/29/05
EPA 300.0	Sulfate	39400	1000	90	ug/L	4/29/05	4/29/05
EPA 310.1	Bicarbonate	218	5	0.787	mg/L	5/10/05	5/10/05
EPA 310.1	Carbonate	3.6 J	5	0.787	mg/L	5/10/05	5/10/05

J = Estimated value, below quantitation limit.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-115

Sample Collection Date: 4/28/05

APPL ID: AX18978

ARF: 47294

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	37100	1000	80	ug/L	4/29/05	4/29/05
EPA 300.0	Nitrate	7390	200	15	ug/L	4/29/05	4/29/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/29/05	4/29/05
EPA 300.0	Sulfate	291000 E	1000	90	ug/L	4/29/05	4/29/05
EPA 300.0	Sulfate	242000	5000	450	ug/L	5/12/05	5/12/05
EPA 310.1	Bicarbonate	419	5	0.787	mg/L	5/10/05	5/10/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	5/10/05	5/10/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-114

Sample Collection Date: 4/28/05

APPL ID: AX18979

ARF: 47294

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	39600	1000	80	ug/L	4/29/05	4/29/05
EPA 300.0	Nitrate	5360	200	15	ug/L	4/29/05	4/29/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/29/05	4/29/05
EPA 300.0	Sulfate	398000 E	1000	90	ug/L	4/29/05	4/29/05
EPA 300.0	Sulfate	333000	5000	450	ug/L	5/12/05	5/12/05
EPA 310.1	Bicarbonate	308	5	0.787	mg/L	5/10/05	5/10/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	5/10/05	5/10/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tatra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-106**

Sample Collection Date: 4/28/05

**APPL ID: AX18980**

ARF: 47294

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	40100	1000	80	ug/L	4/29/05	4/29/05
EPA 300.0	Nitrate	3420	200	15	ug/L	4/29/05	4/29/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/29/05	4/29/05
EPA 300.0	Sulfate	242000	5000	450	ug/L	5/12/05	5/12/05
EPA 300.0	Sulfate	302000 E	1000	90	ug/L	4/29/05	4/29/05
EPA 310.1	Bicarbonate	366	5	0.787	mg/L	5/10/05	5/10/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	5/10/05	5/10/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APFL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 88-WOPT-107

Sample Collection Date: 4/28/05

APPL ID: AX18981

ARF: 47294

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	40500	1000	80	ug/L	4/29/05	4/29/05
EPA 300.0	Nitrate	Not detected	200	15	ug/L	4/29/05	4/29/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/29/05	4/29/05
EPA 300.0	Sulfate	302000 E	1000	90	ug/L	4/29/05	4/29/05
EPA 300.0	Sulfate	253000	5000	450	ug/L	5/12/05	5/12/05
EPA 310.1	Bicarbonate	368	5	0.787	mg/L	5/10/05	5/10/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	5/10/05	5/10/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs



## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-105

Sample Collection Date: 4/28/05

APPL ID: AX18982

ARF: 47294

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	40600	1000	80	ug/L	4/29/05	4/29/05
EPA 300.0	Nitrate	Not detected	200	15	ug/L	4/29/05	4/29/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/29/05	4/29/05
EPA 300.0	Sulfate	227000	5000	450	ug/L	5/17/05	5/17/05
EPA 300.0	Sulfate	277000 E	1000	90	ug/L	4/29/05	4/29/05
EPA 310.1	Bicarbonate	448	5	0.787	mg/L	5/10/05	5/10/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	5/10/05	5/10/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-118

Sample Collection Date: 4/28/05

APPL ID: AX18983

ARF: 47294

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	13600	1000	80	ug/L	4/29/05	4/29/05
EPA 300.0	Nitrate	2860	200	15	ug/L	4/29/05	4/29/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	4/29/05	4/29/05
EPA 300.0	Sulfate	6520	1000	90	ug/L	4/29/05	4/29/05
EPA 310.1	Bicarbonate	181	5	0.787	mg/L	5/10/05	5/10/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	5/10/05	5/10/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

ORIGINAL

LDC Report# 13541B1b

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Moffett Air Field, Building 88, CTO 86  
**Collection Date:** April 28, 2005  
**LDC Report Date:** May 27, 2005  
**Matrix:** Water  
**Parameters:** Volatiles  
**Validation Level:** EPA Level III & IV  
**Laboratory:** APPL, Inc.  
**Sample Delivery Group (SDG):** 47294

### Sample Identification

86-WOPT-123	86-WOPT-118
86-WOPT-110	86-WOPT-111DLMS
86-WOPT-110DL	86-WOPT-111DLMSD
86-WOPT-108	
86-WOPT-108DL	
86-WOPT-109**	
86-WOPT-109DL**	
86-WOPT-111	
86-WOPT-111DL	
86-WOPT-119	
86-WOPT-115	
86-WOPT-115DL	
86-WOPT-114	
86-WOPT-114DL	
86-WOPT-106	
86-WOPT-106DL	
86-WOPT-107**	
86-WOPT-107DL**	
86-WOPT-105**	
86-WOPT-105DL**	

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 23 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Contract Laboratory Program Statement of Work (SOW) OLM04.2 for Volatiles.

This review follows USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999); the following subsections correlate to the above guidelines.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 30.0% for all compounds.

Average relative response factors (RRF) for all volatile target compounds and system monitoring compounds were within validation criteria.

## IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 25.0% with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
5/11/05	Bromomethane	32	86-WOPT-111 86-WOPT-119 86-WOPT-115 86-WOPT-114 86-WOPT-106 86-WOPT-107** 86-WOPT-105** 86-WOPT-118 050511W	J (all detects) UJ (all non-detects)	A

All of the continuing calibration RRF values were within validation criteria.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Analysis Date	Compound TIC (RT in minutes)	Concentration	Associated Samples
050510W	5/10/05	Acetone Methylene chloride	4.1 ug/L 3.0 ug/L	86-WOPT-123 86-WOPT-110 86-WOPT-108 86-WOPT-109**
050511W	5/11/05	Acetone Methylene chloride	2.3 ug/L 0.59 ug/L	86-WOPT-111 86-WOPT-119 86-WOPT-115 86-WOPT-114 86-WOPT-106 86-WOPT-107** 86-WOPT-105** 86-WOPT-118

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
86-WOPT-123	Acetone Methylene chloride	3.0 ug/L 0.72 ug/L	5U ug/L 0.72U ug/L
86-WOPT-110	Methylene chloride	0.73 ug/L	0.73U ug/L
86-WOPT-108	Methylene chloride	0.75 ug/L	0.75U ug/L
86-WOPT-109**	Methylene chloride	0.73 ug/L	0.73U ug/L
86-WOPT-111	Methylene chloride	0.56 ug/L	0.56U ug/L
86-WOPT-119	Methylene chloride	0.60 ug/L	0.60U ug/L
86-WOPT-115	Methylene chloride	0.58 ug/L	0.58U ug/L
86-WOPT-114	Methylene chloride	0.61 ug/L	0.61U ug/L
86-WOPT-106	Methylene chloride	0.60 ug/L	0.60U ug/L
86-WOPT-107**	Methylene chloride	0.62 ug/L	0.62U ug/L
86-WOPT-105**	Methylene chloride	0.58 ug/L	0.58U ug/L

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
86-WOPT-118	Methylene chloride	0.58 ug/L	0.58U ug/L

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the SOW. All surrogate recoveries (%R) were within QC limits with the following exceptions:

Sample	Surrogate	%R (Limits)	Compound	Flag	A or P
050512W	Bromofluorobenzene Toluene-d8	128 (75-125) 129 (75-125)	All TCL compounds	J (all detects) UJ (all non-detects)	P
86-WOPT-110DL	Toluene-d8	129 (75-125)	All TCL compounds	J (all detects)	A
86-WOPT-109DL**	Bromofluorobenzene Toluene-d8	128 (75-125) 132 (75-125)	All TCL compounds	J (all detects)	A
86-WOPT-111DL	Bromofluorobenzene Toluene-d8	131 (75-125) 137 (75-125)	All TCL compounds	J (all detects)	A
86-WOPT-115DL	Bromofluorobenzene Toluene-d8	128 (75-125) 133 (75-125)	All TCL compounds	J (all detects)	A
86-WOPT-114DL	Bromofluorobenzene Toluene-d8	130 (75-125) 135 (75-125)	All TCL compounds	J (all detects)	A
86-WOPT-106DL	Bromofluorobenzene Toluene-d8	129 (75-125) 136 (75-125)	All TCL compounds	J (all detects)	A
86-WOPT-107DL**	Bromofluorobenzene Toluene-d8	130 (75-125) 139 (75-125)	All TCL compounds	J (all detects)	A
86-WOPT-105DL**	Bromofluorobenzene Toluene-d8	127 (75-125) 133 (75-125)	All TCL compounds	J (all detects)	A

## VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

### VIII. Laboratory Control Samples (LCS)

Although laboratory control samples were not required by the method, laboratory control samples were reported by the laboratory. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

### IX. Regional Quality Assurance and Quality Control

Not applicable.

### X. Internal Standards

All internal standard areas and retention times were within QC limits.

### XI. Target Compound Identifications

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

### XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
86-WOPT-110	cis-1,2-Dichloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	A
86-WOPT-108 86-WOPT-109** 86-WOPT-111 86-WOPT-115 86-WOPT-106 86-WOPT-107** 86-WOPT-105**	cis-1,2-Dichloroethene Trichloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects)	A
86-WOPT-114	cis-1,2-Dichloroethene Trichloroethene Tetrachloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects) J (all detects)	A

Raw data were not evaluated for the samples reviewed by Level III criteria.

### XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.



#### XIV. System Performance

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

#### XV. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

#### XVI. Field Duplicates

Samples 86-WOPT-108 and 86-WOPT-109\*\*, samples 86-WOPT-108DL and 86-WOPT-109DL\*\*, 86-WOPT-106 and 86-WOPT-107\*\*, and samples 86-WOPT-106DL and 86-WOPT-107DL\*\* were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	86-WOPT-108	86-WOPT-109**	
1,1,1-Trichloroethane	0.50	0.53	6
1,1,2-Trichloro-1,2,2-trifluoroethane	26	24	8
1,1-Dichloroethane	14	14	0
1,1-Dichloroethene	36	34	6
1,2-Dichloroethane	1.6	1.5	6
Chloroform	0.21	0.21	0
cis-1,2-Dichloroethene	900	860	5
Methylene chloride	0.75	0.73	3
Tetrachloroethene	6.5	6.3	3
trans-1,2-Dichloroethene	5.4	5.0	8
Trichloroethene	1400	1500	7
Vinyl chloride	4.0	3.6	11

Compound	Concentration (ug/L)		RPD
	86-WOPT-108DL	86-WOPT-109DL**	
cis-1,2-Dichloroethene	790	800	1
Trichloroethene	1300	1300	0

Compound	Concentration (ug/L)		RPD
	86-WOPT-106	86-WOPT-107**	
1,1,1-Trichloroethane	0.74	0.84	13
1,1,2-Trichloro-1,2,2-trifluoroethane	32	33	3
1,1-Dichloroethane	13	15	14
1,1-Dichloroethene	35	36	3
1,2-Dichloroethane	0.61	0.5U	Not calculable
Chloroform	0.27	0.26	4
cis-1,2-Dichloroethene	540	530	2
Methylene chloride	0.60	0.62	3
Tetrachloroethene	1.9	1.3	37
trans-1,2-Dichloroethene	7.4	7.3	1
Trichloroethene	1800	1800	0
Vinyl chloride	15	15	0

Compound	Concentration (ug/L)		RPD
	86-WOPT-106DL	88-WOPT-107DL**	
cis-1,2-Dichloroethene	490	500	2
Trichloroethene	1800	1800	0

## XVII. Field Blanks

Sample 86-WOPT-123 was identified as a trip blank. No volatile contaminants were found in this blank with the following exceptions:

Trip Blank ID	Compound	Concentration (ug/L)
86-WOPT-123	Acetone	3.0
	cis-1,2-Dichloroethene	0.31
	Methylene chloride	0.72
	Trichloroethene	2.1

**Moffett Air Field, Building 88, CTO 86**  
**Volatiles - Data Qualification Summary - SDG 47294**

SDG	Sample	Compound	Flag	A or P	Reason
47294	86-WOPT-111 86-WOPT-119 86-WOPT-115 86-WOPT-114 86-WOPT-106 86-WOPT-107** 86-WOPT-105** 86-WOPT-118	Bromomethane	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
47294	86-WOPT-110DL 86-WOPT-109DL** 86-WOPT-111DL 86-WOPT-115DL 86-WOPT-114DL 86-WOPT-106DL 86-WOPT-107DL** 86-WOPT-105DL**	All TCL compounds	J (all detects)	A	Surrogate spikes (%R)
47294	86-WOPT-110	cis-1,2-Dichloroethene	J (all detects)	A	Compound quantitation and CROQLs
47294	86-WOPT-108 86-WOPT-109** 86-WOPT-111 86-WOPT-115 86-WOPT-106 86-WOPT-107** 86-WOPT-105**	cis-1,2-Dichloroethene Trichloroethene	J (all detects) J (all detects)	A	Compound quantitation and CROQLs
47294	86-WOPT-114	cis-1,2-Dichloroethene Trichloroethene Tetrachloroethene	J (all detects) J (all detects) J (all detects)	A	Compound quantitation and CROQLs

**Moffett Air Field, Building 88, CTO 86**  
**Volatiles - Laboratory Blank Data Qualification Summary - SDG 47294**

SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P
47294	86-WOPT-123	Acetone Methylene chloride	5U ug/L 0.72U ug/L	A
47294	86-WOPT-110	Methylene chloride	0.73U ug/L	A
47294	86-WOPT-108	Methylene chloride	0.75U ug/L	A
47294	86-WOPT-109**	Methylene chloride	0.73U ug/L	A

SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P
47294	86-WOPT-111	Methylene chloride	0.56U ug/L	A
47294	86-WOPT-119	Methylene chloride	0.60U ug/L	A
47294	86-WOPT-115	Methylene chloride	0.58U ug/L	A
47294	86-WOPT-114	Methylene chloride	0.61U ug/L	A
47294	86-WOPT-106	Methylene chloride	0.60U ug/L	A
47294	86-WOPT-107**	Methylene chloride	0.62U ug/L	A
47294	86-WOPT-105**	Methylene chloride	0.58U ug/L	A
47294	86-WOPT-118	Methylene chloride	0.56U ug/L	A

**Laboratory Data Consultants, Inc.**  
**Data Validation Report**

**Project/Site Name:** Moffett Air Field, Building 88, CTO 86

**Collection Date:** April 28, 2005

**LDC Report Date:** May 27, 2005

**Matrix:** Water

**Parameters:** Metals

**Validation Level:** EPA Level III & IV

**Laboratory:** APPL, Inc.

**Sample Delivery Group (SDG):** 47294

**Sample Identification**

86-WOPT-110  
86-WOPT-108  
86-WOPT-109\*\*  
86-WOPT-111  
86-WOPT-119  
86-WOPT-115  
86-WOPT-114  
86-WOPT-106  
86-WOPT-107\*\*  
86-WOPT-105\*\*  
86-WOPT-118  
86-WOPT-110DL  
86-WOPT-108DL  
86-WOPT-115DL  
86-WOPT-114DL  
86-WOPT-106DL  
86-WOPT-107DL\*\*  
86-WOPT-105DL\*\*  
86-WOPT-118DL  
86-WOPT-111MS  
86-WOPT-111MSD

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 21 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 6010B for Metals. The metals analyzed were Calcium, Iron, Magnesium, Potassium, and Sodium.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

## III. Blanks

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Calcium Sodium	0.035 mg/L 0.29 mg/L	All samples in SDG 47294

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or were significantly greater ( >5X blank contaminants) than the concentrations found in the associated method blanks.

## IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

## V. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:



Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
86-WOPT-111MS,MSD (86-WOPT-110 86-WOPT-108 86-WOPT-109** 86-WOPT-111 86-WOPT-119 86-WOPT-115 86-WOPT-114 86-WOPT-106 86-WOPT-107** 86-WOPT-105** 86-WOPT-118)	Magnesium	-	79.6 (80-120)	-	J (all detects) UJ (all non-detects)	A

## VI. Duplicate Sample Analysis

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

## VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Internal Standards

ICP-MS was not utilized in this SDG.

## IX. Furnace Atomic Absorption QC

Graphite furnace atomic absorption was not utilized in this SDG.

## X. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met.

## XI. Sample Result Verification

All sample result verification met validation criteria with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
86-WOPT-110 86-WOPT-108 86-WOPT-115 86-WOPT-114 86-WOPT-106 86-WOPT-107** 86-WOPT-105**	Calcium	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	A
86-WOPT-118	Sodium	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	A

Raw data were not evaluated for samples reviewed by Level III criteria.

## XII. Overall Assessment of Data

Data flags have been summarized at the end of this report.

## XIII. Field Duplicates

Samples 86-WOPT-108 and 86-WOPT-109\*\*, samples 86-WOPT-108DL and 86-WOPT-109\*\*, samples 86-WOPT-106 and 86-WOPT-107\*\*, and samples 86-WOPT-106DL and 86-WOPT-107DL\*\* were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:

Compound	Concentration (mg/L)		RPD
	86-WOPT-108	86-WOPT-109**	
Calcium	144	98.6	37
Iron	3.0	0.054	193
Magnesium	50.1	39.5	24
Potassium	1.7	2.1	21
Sodium	39.3	32.0	20

Compound	Concentration (mg/L)		RPD
	86-WOPT-108DL	86-WOPT-109**	
Calcium	160	98.6	47

Compound	Concentration (mg/L)		RPD
	86-WOPT-106	86-WOPT-107**	
Calcium	144	146	1
Iron	0.1U	0.22	Not calculable
Magnesium	46.8	48.0	3
Potassium	1.6	1.6	0
Sodium	36.8	37.5	2

Compound	Concentration (mg/L)		RPD
	86-WOPT-108DL	88-WOPT-107DL**	
Calcium	159	158	1

#### XIV. Field Blanks

No field blanks were identified in this SDG.

**Moffett Air Field, Building 88, CTO 86**  
**Metals - Data Qualification Summary - SDG 47294**

SDG	Sample	Analyte	Flag	A or P	Reason
47294	86-WOPT-110 86-WOPT-108 86-WOPT-109** 86-WOPT-111 86-WOPT-119 86-WOPT-115 86-WOPT-114 86-WOPT-106 86-WOPT-107** 86-WOPT-105** 86-WOPT-118	Magnesium	J (all detects) UU (all non-detects)	A	Matrix spike/Matrix spike duplicates (%R)
47294	86-WOPT-110 86-WOPT-108 86-WOPT-115 86-WOPT-114 86-WOPT-106 86-WOPT-107** 86-WOPT-105**	Calcium	J (all detects)	A	Sample result verification
47294	86-WOPT-118	Sodium	J (all detects)	A	Sample result verification

**Moffett Air Field, Building 88, CTO 86**  
**Metals - Laboratory Blank Data Qualification Summary - SDG 47294**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.**  
**Data Validation Report**

**Project/Site Name:** Moffett Air Field, Building 88, CTO 86  
**Collection Date:** April 28, 2005  
**LDC Report Date:** May 27, 2005  
**Matrix:** Water  
**Parameters:** Wet Chemistry  
**Validation Level:** EPA Level III & IV  
**Laboratory:** APPL, Inc.

**Sample Delivery Group (SDG):** 47294

**Sample Identification**

86-WOPT-110	86-WOPT-111MS
86-WOPT-108	86-WOPT-111MSD
86-WOPT-109**	
86-WOPT-111	
86-WOPT-119	
86-WOPT-115	
86-WOPT-114	
86-WOPT-106	
86-WOPT-107**	
86-WOPT-105**	
86-WOPT-118	
86-WOPT-110DL	
86-WOPT-108DL	
86-WOPT-109DL**	
86-WOPT-111DL	
86-WOPT-115DL	
86-WOPT-114DL	
86-WOPT-106DL	
86-WOPT-107DL**	
86-WOPT-105DL**	

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 22 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 300.0 for Chloride, Nitrate, Nitrite, and Sulfate, and EPA Method 310.1 for Carbonate and Bicarbonate.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section IX.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

### a. Initial Calibration

All criteria for the initial calibration of each method were met.

### b. Calibration Verification

Calibration verification frequency and analysis criteria were met for each method when applicable.

## III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the method blanks with the following exceptions:

Method Blank ID	Analyte	Concentration	Associated Samples
ICB/CCB	Chloride	2.24 mg/L	86-WOPT-110 86-WOPT-108 86-WOPT-109** 86-WOPT-111 86-WOPT-119 86-WOPT-115 86-WOPT-114 86-WOPT-106 86-WOPT-107** 86-WOPT-105** 86-WOPT-118

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater ( >5X blank contaminants) than the concentrations found in the associated method blanks.

## IV. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## V. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## VI. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VII. Sample Result Verification

All sample result verification met validation criteria with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
86-WOPT-110 86-WOPT-108 86-WOPT-109** 86-WOPT-111 86-WOPT-115 86-WOPT-114 86-WOPT-106 86-WOPT-107** 86-WOPT-105**	Sulfate	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	A

Raw data were not evaluated for the samples reviewed by Level III criteria.

## VIII. Overall Assessment of Data

Data flags are summarized at the end of this report.

## IX. Field Duplicates

Samples 86-WOPT-108 and 86-WOPT-109\*\*, samples 86-WOPT-108DL and 86-WOPT-109DL\*\*, samples 86-WOPT-106 and 86-WOPT-107\*\*, and samples 86-WOPT-106DL and 86-WOPT-107DL\*\* were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration (ug/L)		RPD
	86-WOPT-108	86-WOPT-109**	
Chloride	44200	44300	0
Nitrate as N	3300	659	133
Sulfate	345000	345000	0



Analyte	Concentration (mg/L)		RPD
	86-WOPT-108	86-WOPT-109**	
Bicarbonate	350	352	1

Analyte	Concentration (ug/L)		RPD
	86-WOPT-108DL	86-WOPT-109DL**	
Sulfate	287000	288000	0

Analyte	Concentration (ug/L)		RPD
	86-WOPT-108	86-WOPT-107**	
Chloride	40100	40500	1
Nitrate as N	3420	200U	Not calculable
Sulfate	302000	302000	0

Analyte	Concentration (mg/L)		RPD
	86-WOPT-106	86-WOPT-107**	
Bicarbonate	366	368	1

Analyte	Concentration (ug/L)		RPD
	86-WOPT-106DL	86-WOPT-107DL**	
Sulfate	242000	253000	4

## X. Field Blanks

No field blanks were identified in this SDG.

**Moffett Air Field, Building 88, CTO 86****Wet Chemistry - Data Qualification Summary - SDG 47294**

SDG	Sample	Analyte	Flag	A or P	Reason
47294	86-WOPT-110 86-WOPT-108 86-WOPT-109** 86-WOPT-111 86-WOPT-115 86-WOPT-114 86-WOPT-106 86-WOPT-107** 86-WOPT-105**	Sulfate	J (all detects)	A	Sample result verification

**Moffett Air Field, Building 88, CTO 86****Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 47294**

No Sample Data Qualified in this SDG



**TETRA TECH**  
Environmental  
San Ramon, CA 94583 (925) 254-6666

CHAIN-OF-CUSTODY RECORD

NUMBER 10774

PROJECT NAME		PURCHASE ORDER NO		ANALYSES REQUIRED		LABORATORY NAME		Project Information	
PROJECT LOCATION		PROJECT NO		LABORATORY NO		LABORATORY NO		Section	
SAMPLER NAME		AIRBILL NUMBER		LABORATORY NO		LABORATORY NO		Do not submit to	
PROJECT CONTACT		PROJECT CONTACT PHONE NUMBER		LABORATORY NO		LABORATORY NO		Laboratory	
SAMPLE ID		DATE COLLECTED		TIME COLLECTED		NO OF CONTAINERS		LOCATION	
								DEPTH	
								START	
								END	
								QC	
BUILDING 88	53432	1990-0867	1100	3	X	W27	X	GP-TRP BAE	- 13
WORTH F.F. 9CA	1990-0867	1225	5	X	X	X	X	GP-88-20	10 17
LARRY DAVIS	1990-0867	1245	5	X	X	X	X	GP-88-20	14 21
CHUN TSENG	1990-0867	1305	5	X	X	X	X	GP-88-20	14 21
	1310	5	X	X	X	X	X	GP-88-20	14 21
86-WOPT-616	51205	1325	5	X	X	X	X	GP-88-20	14 21
86-WOPT-617		1340	5	X	X	X	X	GP-88-20	14 21
86-WOPT-618		1400	5	X	X	X	X	GP-88-20	14 21
86-WOPT-619								GP-88-20	14 21
86-WOPT-620								GP-88-20	14 21
86-WOPT-621								GP-88-20	14 21
86-WOPT-622								GP-88-20	14 21
86-WOPT-623								GP-88-20	14 21
LABORATORY INSTRUCTIONS/COMMENTS									
24 hr TAT ON WX ANALYSIS METHS 10 DAY TAT									
COMMENTS: DISCONTINUED									
SAMPLING COMMENT: HYDRODUNAL IN CWD STATION DOZUEWAY Bldg. 88 CPT									

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management



**TETRA TECH**  
12400 Wilshire Blvd.  
Suite 1000, Los Angeles, CA 90025  
(818) 225-2000

# CHAIN-OF-CUSTODY RECORD

NUMBER 10775

PROJECT NAME		PURCHASE ORDER NO.		ANALYSES REQUIRED										LABORATORY NAME		Project Information	
BUILDING 866		55432												AIR		Section	
PROJECT LOCATION		PROJECT NO.														Do not submit to	
MOFFETT FIELD CA		1990.066D														Laboratory	
SAMPLER NAME		AIRBILL NUMBER												LABORATORY # (FOR LABORATORY)			
LARRY DUBOY		CORRIFER PULP												41325			
PROJECT CONTACT		PROJECT CONTACT PHONE NUMBER															
LYNN TEFERAGLON		949-756-7786															
SAMPLE ID	DATE COLLECTED	TIME	NO. OF CONTAINER	LEVEL	T	A	T	A	T	A	T	A	COMMENTS	LOCATION	DEPTH	QC	
				3	4	5	6	7	8	9	10	11			START	END	
86-W007-624	5/21/05	5:15	5	5	5	5	5	5	5	5	5	5	PCOR RECOVERY	CPT-88-20	0	11	7/24
86-W007-625	5/21/05	5:40	4	5	5	5	5	5	5	5	5	5		CPT-88-20	20	21	7/24
86-W007-626	5/21/05	6:15	4	5	5	5	5	5	5	5	5	5		CPT-88-20	24	30	7/24
86-W007-627	5/21/05	6:40	4	5	5	5	5	5	5	5	5	5		CPT-88-20	40	41	7/24
86-W007-628	5/21/05	7:10	5	5	5	5	5	5	5	5	5	5		CPT-88-20	56	57	7/24
86-W007-629	5/21/05	7:25	5	5	5	5	5	5	5	5	5	5		CPT-88-20	16	17	7/24
86-W007-630	5/21/05	7:45	4	5	5	5	5	5	5	5	5	5		CPT-88-20	52	53	7/24
														EQUIPMENT RISK			
LABORATORY INSTRUCTIONS/COMMENTS																	
COMPOSITE DESCRIPTION 24 WOOD																	
SAMPLE CONDITION UPON RECEIPT (FOR LABORATORY)																	
TEMPERATURE: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN																	
COOLER SEAL: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN																	
SAMPLING COMMENT: SOIL FROM GAS STATION DRIVE WAY Bldg. 88 OPT																	

Data Validation Package  
for  
Moffett Air Field, WATS Building 88, CTO 86  
ARF 47325

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## Case Narrative

ARF: 47325

Project: 1990.086D WATS Bldg 88 Moffett Airfield

State Certification Number: CA1312

Results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

### Sample Receipt Information:

The sample group was received May 02, 2005, at 3.5°C. The samples were assigned Analytical Request Form (ARF) number 47325. The sample numbers and requested analyses were compared to the chains of custody. The soil TOC analysis was sub-contracted to Columbia Analytical Laboratory. No exception was noted.

Sample Table

CLIENT ID	APPL ID	Matrix	Date Sampled	Date Received
86-WOPT-616	AX19179	WATER	5/2/05	5/2/05
86-WOPT-617	AX19180	WATER	5/2/05	5/2/05
86-WOPT-618	AX19181	WATER	5/2/05	5/2/05
86-WOPT-619	AX19182	WATER	5/2/05	5/2/05
86-WOPT-620	AX19183	WATER	5/2/05	5/2/05
86-WOPT-621	AX19184	WATER	5/2/05	5/2/05
86-WOPT-622	AX19185	WATER	5/2/05	5/2/05
86-WOPT-623	AX19186	WATER	5/2/05	5/2/05
86-WOPT-624	AX19187	SOIL	5/2/05	5/2/05
86-WOPT-625	AX19188	SOIL	5/2/05	5/2/05
86-WOPT-626	AX19189	SOIL	5/2/05	5/2/05
86-WOPT-627	AX19190	SOIL	5/2/05	5/2/05
86-WOPT-628	AX19191	SOIL	5/2/05	5/2/05
86-WOPT-629	AX19192	SOIL	5/2/05	5/2/05
86-WOPT-630	AX19193	WATER	5/2/05	5/2/05

# **EPA Method 8260B and CLP Volatiles Volatile Organic Analysis**

## **Sample Preparation:**

The samples were purged according to EPA method 5030B, 5035, and CLP. Due to an analyst's oversight, sample 86-WOPT-630 was analyzed on the 21<sup>st</sup> day from sample date. All other holding times were met.

## **Sample Analysis Information:**

The samples were analyzed according to the method using a Hewlett Packard Gas Chromatograph with a mass spectrometer detector. The sample pH were taken after analysis. All samples had a pH of 2.

## **Quality Control/Assurance**

### **Calibrations:**

Initial and continuing calibrations were performed according to the method. For the continuing calibration verification performed on Chico file ID: 0503C02W.D, Acetone had a 40%D. For the continuing calibration verification performed on Chico file ID: 0502C10S.D, Bromomethane had a 24%D. For the continuing calibration verification performed on Max file ID: 0515M01W.D, Chloromethane had a 28%D. All other calibration criteria were met.

### **Blanks:**

No target analyte was detected above the reporting limits in the method blanks.

### **Spikes:**

Laboratory Control Spikes (LCS) were used for quality assurance. A second-source standard was used for the LCS. All spike and second-source criteria were met. All recoveries were within acceptable limits.

No sample was designated by the client for MS/MSD analysis.

### **Surrogates**

All surrogate recoveries were within control limits.

### **Tuning:**

The instrument was tuned using BFB. All method criteria were met.

### **Internal Standards**

The internal standard area counts were compared to the mid-point of the initial calibration according to method 8260. The internal standard area counts were compared to the continuing calibration according to CLP. All method criteria were met.

## **Summary:**

No additional problem was encountered.

# **EPA Methods 6010B**

## **Metals**

### **Digestion Information:**

The water was digested according to EPA methods 3010A. No exceptions were encountered. All holding times were met.

### **Analysis Information:**

#### **Samples:**

The sample was analyzed for dissolved metals according to EPA method 6010B using a Perkin Elmer Optima 4300DV.

#### **Calibrations:**

Calibrations were performed according to the methods for the initial calibration and the initial calibration verification. The initial calibration verification is prepared from a second source standard.

#### **Blanks:**

Potassium was detected below the reporting limit but above the MDL in the 050509A2 method blank at 0.12mg/L. No other target metal was detected above the reporting limits in the method blank.

#### **Spikes:**

Laboratory Control Spikes (LCS/LCSD) were used for quality assurance. LCS recoveries were within acceptance limits.

No sample was designated by the client for MS/MSD analysis.

### **Summary:**

No analytical exception is noted. All data are acceptable.



# **EPA Methods 300.0, 310.1 and 9060A**

## **Anions, Carbonates & Bi-carbonates and Total Organic Carbon**

### **Sample Preparation Information:**

A Dionex DX500 ion chromatograph was used for the EPA 300.0 analysis. The TOC was analyzed using a Shimadzu TOC-5050A instrument. The samples were screened down to the MDL.

### **Analysis Information:**

#### **Samples:**

The sample was analyzed according to the methods. A Dionex DX500 ion chromatograph was used for the EPA 300.0 analysis.

#### **Calibrations:**

Calibrations were performed according to the methods for the initial calibration and the initial calibration verification. The initial calibration verification is prepared from a second source standard.

#### **Blanks:**

No target analyte was detected above the reporting limits in the method blanks.

#### **Spikes:**

Laboratory Control Spikes (LCS/LCSD) and Sample Duplicates were used for quality assurance. All recoveries met acceptance criteria.

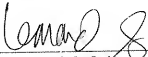
No sample was designated by the client for MS/MSD analysis. The laboratory designated sample 86-WOPT-622 as an MS for the EPA 310.1 analysis. All recoveries met acceptance criteria.

### **Summary:**

No analytical exception is noted.

## CERTIFICATION

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the hard copy has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

 5/24/05  
\_\_\_\_\_  
Leonard Fong, Ph.D. Laboratory Director / Date

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47325  
APPL ID: AX19179  
QCQ: \$C42VT-050515AN-87254

Sample ID: 86-WOPT-616

Sample Collection Date: 5/2/05

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	5/15/05	5/15/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	5/15/05	5/15/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	0.5	0.21	ug/L	5/15/05	5/15/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	5/15/05	5/15/05
CLP VOL	1,1-Dichloroethane	Not detected	0.5	0.19	ug/L	5/15/05	5/15/05
CLP VOL	1,1-Dichloroethene	Not detected	0.5	0.30	ug/L	5/15/05	5/15/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	5/15/05	5/15/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	5/15/05	5/15/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	5/15/05	5/15/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	5/15/05	5/15/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	5/15/05	5/15/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	5/15/05	5/15/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	5/15/05	5/15/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	5/15/05	5/15/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	5/15/05	5/15/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	5/15/05	5/15/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	5/15/05	5/15/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	5/15/05	5/15/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	5/15/05	5/15/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	5/15/05	5/15/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	5/15/05	5/15/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	5/15/05	5/15/05
CLP VOL	cis-1,2-Dichloroethene	Not detected	0.5	0.16	ug/L	5/15/05	5/15/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	5/15/05	5/15/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	5/15/05	5/15/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	5/15/05	5/15/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	5/15/05	5/15/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	5/15/05	5/15/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	5/15/05	5/15/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	5/15/05	5/15/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	5/15/05	5/15/05

Run #: 0515M06  
Instrument: Max  
Sequence: M050501  
Dilution Factor: 1  
Initials: LF

Printed: 5/23/05 6:46:18 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990.08SD WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-616**

Sample Collection Date: 5/2/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47325

**APPL ID: AX19179**

QCG: SC42VT-050515AN-87254

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	Not detected	0.5	0.15	ug/L	5/15/05	5/15/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	5/15/05	5/15/05
CLP VOL	trans-1,2-Dichloroethene	Not detected	0.5	0.19	ug/L	5/15/05	5/15/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	5/15/05	5/15/05
CLP VOL	Trichloroethene	Not detected	0.5	0.16	ug/L	5/15/05	5/15/05
CLP VOL	Vinyl Chloride	Not detected	0.5	0.23	ug/L	5/15/05	5/15/05
CLP VOL	Surrogate Recovery (BFB)	103	75-125		%	5/15/05	5/15/05
CLP VOL	Surrogate Recovery (DCA)	97.4	62-139		%	5/15/05	5/15/05
CLP VOL	Surrogate Recovery (TOL)	101	75-125		%	5/15/05	5/15/05

Run #: 0515M06  
Instrument: Max  
Sequence: M050501  
Dilution Factor: 1  
Initials: LF

Printed: 5/23/05 6:46:18 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 66-WOPT-617

Sample Collection Date: 5/2/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47325

APPL ID: AX19180

QCG: \$C42VT-050515AN-87254

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	0.24 J	0.5	0.14	ug/L	5/15/05	5/15/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	5/15/05	5/15/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	0.71	0.5	0.21	ug/L	5/15/05	5/15/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	5/15/05	5/15/05
CLP VOL	1,1-Dichloroethane	8.2	0.5	0.19	ug/L	5/15/05	5/15/05
CLP VOL	1,1-Dichloroethene	5.1	0.5	0.30	ug/L	5/15/05	5/15/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	5/15/05	5/15/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	5/15/05	5/15/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	5/15/05	5/15/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	5/15/05	5/15/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	5/15/05	5/15/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	5/15/05	5/15/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	5/15/05	5/15/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	5/15/05	5/15/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	5/15/05	5/15/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	5/15/05	5/15/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	5/15/05	5/15/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	5/15/05	5/15/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	5/15/05	5/15/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	5/15/05	5/15/05
CLP VOL	Chloroform	0.17 J	0.5	0.16	ug/L	5/15/05	5/15/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	5/15/05	5/15/05
CLP VOL	cis-1,2-Dichloroethene	130 E	0.5	0.16	ug/L	5/15/05	5/15/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	5/15/05	5/15/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	5/15/05	5/15/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	5/15/05	5/15/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	5/15/05	5/15/05
CLP VOL	Methyl tert-Butyl Ether	1.1	0.5	0.19	ug/L	5/15/05	5/15/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	5/15/05	5/15/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	5/15/05	5/15/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	5/15/05	5/15/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0515M08  
Instrument: Max  
Sequence: M050501  
Dilution Factor: 1  
Initials: LF

Printed: 5/23/05 6:46:18 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Daere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.085D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-617

Sample Collection Date: 5/2/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47325

APPL ID: AX19180

QCG: SC42VT-050515AN-87254

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	3.3	0.5	0.15	ug/L	5/15/05	5/15/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	5/15/05	5/15/05
CLP VOL	trans-1,2-Dichloroethene	1.2	0.5	0.19	ug/L	5/15/05	5/15/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	5/15/05	5/15/05
CLP VOL	Trichloroethene	220 E	0.5	0.16	ug/L	5/15/05	5/15/05
CLP VOL	Vinyl Chloride	0.78	0.5	0.23	ug/L	5/15/05	5/15/05
CLP VOL	Surrogate Recovery (BFB)	104	75-125		%	5/15/05	5/15/05
CLP VOL	Surrogate Recovery (DCA)	102	62-139		%	5/15/05	5/15/05
CLP VOL	Surrogate Recovery (TOL)	98.5	75-125		%	5/15/05	5/15/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0515M08  
Instrument: Max  
Sequence: M050501  
Dilution Factor: 1  
Initials: LF

Printed 5/23/05 6:46:18 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-617

Sample Collection Date: 5/2/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47325

APPL ID: AX19180

QCG: SC42VT-050515AN-97254

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	150	10	3.20	ug/L	5/16/05	5/16/05
CLP VOL	Trichloroethene	260	10	3.20	ug/L	5/16/05	5/16/05
CLP VOL	Surrogate Recovery (BFB)	105	75-125		%	5/16/05	5/16/05
CLP VOL	Surrogate Recovery (DCA)	104	62-139		%	5/16/05	5/16/05
CLP VOL	Surrogate Recovery (TOL)	101	75-125		%	5/16/05	5/16/05

Run #: 0515M14  
Instrument: Max  
Sequence: M050501  
Dilution Factor: 20  
Initials: LF

Printed: 5/24/05 11:24:01 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47325  
APPL ID: AX19181  
QCG: SC42VT-050515AN-87254

Sample ID: 86-WOPT-618

Sample Collection Date: 5/2/05

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	5/15/05	5/15/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	5/15/05	5/15/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	0.5	0.21	ug/L	5/15/05	5/15/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	5/15/05	5/15/05
CLP VOL	1,1-Dichloroethane	7.2	0.5	0.19	ug/L	5/15/05	5/15/05
CLP VOL	1,1-Dichloroethene	15	0.5	0.30	ug/L	5/15/05	5/15/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	5/15/05	5/15/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	5/15/05	5/15/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	5/15/05	5/15/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	5/15/05	5/15/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	5/15/05	5/15/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	5/15/05	5/15/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	5/15/05	5/15/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	5/15/05	5/15/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	5/15/05	5/15/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	5/15/05	5/15/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	5/15/05	5/15/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	5/15/05	5/15/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	5/15/05	5/15/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	5/15/05	5/15/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	5/15/05	5/15/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	5/15/05	5/15/05
CLP VOL	cis-1,2-Dichloroethene	710 E	0.5	0.16	ug/L	5/15/05	5/15/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	5/15/05	5/15/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	5/15/05	5/15/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	5/15/05	5/15/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	5/15/05	5/15/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	5/15/05	5/15/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	5/15/05	5/15/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	5/15/05	5/15/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	5/15/05	5/15/05

E = The reported value exceeds linear range.

Run #: 0515M09  
Instrument: Max  
Sequence: M050501  
Dilution Factor: 1  
Initials: LF

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APPL-F1-SC-MCRes/MCPQL-REG MDLs



## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: **86-WOPT-618**

Sample Collection Date: 5/2/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47325

APPL ID: **AX19181**

QCG: SC42VT-050515AN-87254

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VCL	Tetrachloroethene	Not detected	0.5	0.15	ug/L	5/15/05	5/15/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	5/15/05	5/15/05
CLP VOL	trans-1,2-Dichloroethene	2.7	0.5	0.19	ug/L	5/15/05	5/15/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	5/15/05	5/15/05
CLP VCL	Trichloroethene	2.1	0.5	0.16	ug/L	5/15/05	5/15/05
CLP VOL	Vinyl Chloride	2.0	0.5	0.23	ug/L	5/15/05	5/15/05
CLP VOL	Surrogate Recovery (BFB)	105	75-125		%	5/15/05	5/15/05
CLP VOL	Surrogate Recovery (DCA)	106	62-139		%	5/15/05	5/15/05
CLP VOL	Surrogate Recovery (TOL)	99.3	75-125		%	5/15/05	5/15/05

E = The reported value exceeds linear range.

Run #: 0515M09  
Instrument: Max  
Sequence: M050501  
Dilution Factor: 1  
Initials: LF

Printed: 5/23/05 6:46:18 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski  
Project: 1990 086D WATS Bldg 88 Moffett Airfield

ARF: 47325

Sample ID: 86-WOPT-618

APPL ID: AX19181

Sample Collection Date: 5/2/05

QCG: SC42VT-050515AN-87254

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	790	50	15.00	ug/L	5/16/05	5/16/05
CLP VOL	Surrogate Recovery (BFB)	105	75-125		%	5/16/05	5/16/05
CLP VOL	Surrogate Recovery (DCA)	103	62-139		%	5/16/05	5/16/05
CLP VOL	Surrogate Recovery (TOL)	104	75-125		%	5/16/05	5/16/05

Run #: 0515M15  
Instrument: Max  
Sequence: M050501  
Dilution Factor: 100  
Initials: LF

Printed: 5/23/05 6:46:18 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Blenkowski  
Project: 1990.036D WATS Bldg 88 Moffett Airfield

ARF: 47325  
APPL ID: AX19182  
QCG: SC42VT-050515AN-87254

Sample ID: 86-WOPT-619

Sample Collection Date: 5/2/05

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	5/15/05	5/15/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	5/15/05	5/15/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	4.7	0.5	0.21	ug/L	5/15/05	5/15/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	5/15/05	5/15/05
CLP VOL	1,1-Dichloroethane	14	0.5	0.19	ug/L	5/15/05	5/15/05
CLP VOL	1,1-Dichloroethene	2.1	0.5	0.30	ug/L	5/15/05	5/15/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	5/15/05	5/15/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	5/15/05	5/15/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	5/15/05	5/15/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	5/15/05	5/15/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	5/15/05	5/15/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	5/15/05	5/15/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	5/15/05	5/15/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	5/15/05	5/15/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	5/15/05	5/15/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	5/15/05	5/15/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	5/15/05	5/15/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	5/15/05	5/15/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	5/15/05	5/15/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	5/15/05	5/15/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	5/15/05	5/15/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	5/15/05	5/15/05
CLP VOL	cis-1,2-Dichloroethene	16	0.5	0.16	ug/L	5/15/05	5/15/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	5/15/05	5/15/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	5/15/05	5/15/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	5/15/05	5/15/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	5/15/05	5/15/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	5/15/05	5/15/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	5/15/05	5/15/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	5/15/05	5/15/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	5/15/05	5/15/05

Run #: 0515M07  
Instrument: Max  
Sequence: M050501  
Dilution Factor: 1  
Initials: LF

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APPL-F1-SC-MCRes/MCPQL-REG MDLS

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Blenkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47325

Sample ID: 86-WOPT-619

APPL ID: AX19182

Sample Collection Date: 5/2/05

QCG: SC42VT-050515AN-87254

Method	Analyte	Result	FQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	8.0	0.5	0.15	ug/L	5/15/05	5/15/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	5/15/05	5/15/05
CLP VOL	trans-1,2-Dichloroethene	Not detected	0.5	0.19	ug/L	5/15/05	5/15/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	5/15/05	5/15/05
CLP VOL	Trichloroethene	4.9	0.5	0.16	ug/L	5/15/05	5/15/05
CLP VOL	Vinyl Chloride	1.0	0.5	0.23	ug/L	5/15/05	5/15/05
CLP VOL	Surrogate Recovery (BFB)	101	75-125		%	5/15/05	5/15/05
CLP VOL	Surrogate Recovery (DCA)	97.2	62-139		%	5/15/05	5/15/05
CLP VOL	Surrogate Recovery (TOL)	99.8	75-125		%	5/15/05	5/15/05

Run #: 0515M07  
Instrument: Max  
Sequence: M050501  
Dilution Factor: 1  
Initials: LF

Printed: 5/23/05 6:46:18 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47325

Sample ID: 86-W/OPT-620

APPL ID: AX19183

Sample Collection Date: 5/2/05

QCG: 3C42VT-050515AN-87254

Method	Analyte	Result	FQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	0.21 J	0.5	0.14	ug/L	5/15/05	5/15/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	5/15/05	5/15/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	46	0.5	0.21	ug/L	5/15/05	5/15/05
CLP VOL	1,1,2-Trichloroethane	0.26 J	0.5	0.2	ug/L	5/15/05	5/15/05
CLP VOL	1,1-Dichloroethane	19	0.5	0.19	ug/L	5/15/05	5/15/05
CLP VOL	1,1-Dichloroethene	40	0.5	0.30	ug/L	5/15/05	5/15/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	5/15/05	5/15/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	5/15/05	5/15/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	5/15/05	5/15/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	5/15/05	5/15/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	5/15/05	5/15/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	5/15/05	5/15/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	5/15/05	5/15/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	5/15/05	5/15/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	5/15/05	5/15/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	5/15/05	5/15/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	5/15/05	5/15/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	5/15/05	5/15/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	5/15/05	5/15/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	5/15/05	5/15/05
CLP VOL	Chloroform	0.34 J	0.5	0.16	ug/L	5/15/05	5/15/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	5/15/05	5/15/05
CLP VOL	cis-1,2-Dichloroethene	300 E	0.5	0.16	ug/L	5/15/05	5/15/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	5/15/05	5/15/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	5/15/05	5/15/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	5/15/05	5/15/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	5/15/05	5/15/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	5/15/05	5/15/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	5/15/05	5/15/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	5/15/05	5/15/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	5/15/05	5/15/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0515M10  
Instrument: Max  
Sequence: M050501  
Dilution Factor: 1  
Initials: LF

Printed: 5/23/05 6:46 18 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.08SD WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-620

Sample Collection Date: 5/2/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47325

APPL ID: AX19183

QCG: SC42VT-050515AN-87254

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	53	0.5	0.15	ug/L	5/15/05	5/15/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	5/15/05	5/15/05
CLP VOL	trans-1,2-Dichloroethene	0.44 J	0.5	0.19	ug/L	5/15/05	5/15/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	5/15/05	5/15/05
CLP VOL	Trichloroethene	28	0.5	0.16	ug/L	5/15/05	5/15/05
CLP VOL	Vinyl Chloride	2.2	0.5	0.23	ug/L	5/15/05	5/15/05
CLP VOL	Surrogate Recovery (BFB)	101	75-125		%	5/15/05	5/15/05
CLP VOL	Surrogate Recovery (DCA)	102	62-139		%	5/15/05	5/15/05
CLP VOL	Surrogate Recovery (TOL)	97.6	75-125		%	5/15/05	5/15/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0515M10  
Instrument: Max  
Sequence: M050501  
Dilution Factor: 1  
Initials: LF

Printed: 5/23/05 6:46:18 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-620**

Sample Collection Date: 5/2/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47325

**APPL ID: AX19183**

QCG: SC42VT-050515AN-87254

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	350	20	6.40	ug/L	5/16/05	5/16/05
CLP VOL	Surrogate Recovery (BFB)	100	75-125		%	5/16/05	5/16/05
CLP VOL	Surrogate Recovery (DCA)	97.9	62-139		%	5/16/05	5/16/05
CLP VOL	Surrogate Recovery (TOL)	100	75-125		%	5/16/05	5/16/05

Run #: 0515M16  
Instrument: Max  
Sequence: M050501  
Dilution Factor: 40  
Initials: LF

Printed: 5/24/05 11 24:33 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 38 Moffett Airfield

ARF: 47325

Sample ID: 86-WOPT-621

APPL ID: AX19184

Sample Collection Date: 5/2/05

QCG: SC42VT-050515AN-87254

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	0.22 J	0.5	0.14	ug/L	5/16/05	5/16/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	5/16/05	5/16/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	43	0.5	0.21	ug/L	5/16/05	5/16/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	5/16/05	5/16/05
CLP VOL	1,1-Dichloroethane	18	0.5	0.19	ug/L	5/16/05	5/16/05
CLP VOL	1,1-Dichloroethene	39	0.5	0.30	ug/L	5/16/05	5/16/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	5/16/05	5/16/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	5/16/05	5/16/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	5/16/05	5/16/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	5/16/05	5/16/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	5/16/05	5/16/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	5/16/05	5/16/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	5/16/05	5/16/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	5/16/05	5/16/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	5/16/05	5/16/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	5/16/05	5/16/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	5/16/05	5/16/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	5/16/05	5/16/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	5/16/05	5/16/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	5/16/05	5/16/05
CLP VOL	Chloroform	0.36 J	0.5	0.16	ug/L	5/16/05	5/16/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	5/16/05	5/16/05
CLP VOL	cis-1,2-Dichloroethene	290 E	0.5	0.16	ug/L	5/16/05	5/16/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	5/16/05	5/16/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	5/16/05	5/16/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	5/16/05	5/16/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	5/16/05	5/16/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	5/16/05	5/16/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	5/16/05	5/16/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	5/16/05	5/16/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	5/16/05	5/16/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0515M11  
Instrument: Max  
Sequence: M050501  
Dilution Factor: 1  
Initials: LF

Printed: 5/23/05 6:46:18 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-621

Sample Collection Date: 5/2/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47325

APPL ID: AX19184

QCG: \$C42VT-050515AN-87254

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	54	0.5	0.15	ug/L	5/16/05	5/16/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	5/16/05	5/16/05
CLP VOL	trans-1,2-Dichloroethene	0.48 J	0.5	0.19	ug/L	5/16/05	5/16/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	5/16/05	5/16/05
CLP VOL	Trichloroethene	27	0.5	0.16	ug/L	5/16/05	5/16/05
CLP VOL	Vinyl Chloride	2.0	0.5	0.23	ug/L	5/16/05	5/16/05
CLP VOL	Surrogate Recovery (BFB)	103	75-125		%	5/16/05	5/16/05
CLP VOL	Surrogate Recovery (DCA)	97.9	62-139		%	5/16/05	5/16/05
CLP VOL	Surrogate Recovery (TOL)	102	75-125		%	5/16/05	5/16/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0515M11  
Instrument: Max  
Sequence: M050501  
Dilution Factor: 1  
Initials: LF

Printed: 5/23/05 6:46:18 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990.C86D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-621

Sample Collection Date: 5/2/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47325

APPL ID: AX19184

QCG: SC42VT-050515AN-87254

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	330	20	3.20	ug/L	5/16/05	5/16/05
CLP VOL	Surrogate Recovery (BFB)	102	75-125		%	5/16/05	5/16/05
CLP VOL	Surrogate Recovery (DCA)	105	62-139		%	5/16/05	5/16/05
CLP VOL	Surrogate Recovery (TOL)	97.9	75-125		%	5/16/05	5/16/05

Run #: 0515M17  
Instrument: Max  
Sequence: M050501  
Dilution Factor: 20  
Initials: LF

Printed: 5/23/05 6:46:18 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-622

Sample Collection Date: 5/2/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47325

APPL ID: AX19185

QCG: \$C42VT-050515AN-87254

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	0.74	0.5	0.14	ug/L	5/16/05	5/16/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	5/16/05	5/16/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	94	0.5	0.21	ug/L	5/16/05	5/16/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	5/16/05	5/16/05
CLP VOL	1,1-Dichloroethane	7.0	0.5	0.19	ug/L	5/16/05	5/16/05
CLP VOL	1,1-Dichloroethene	29	0.5	0.30	ug/L	5/16/05	5/16/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	5/16/05	5/16/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	5/16/05	5/16/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	5/16/05	5/16/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	5/16/05	5/16/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	5/16/05	5/16/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	5/16/05	5/16/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	5/16/05	5/16/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	5/16/05	5/16/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	5/16/05	5/16/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	5/16/05	5/16/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	5/16/05	5/16/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	5/16/05	5/16/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	5/16/05	5/16/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	5/16/05	5/16/05
CLP VOL	Chloroform	0.56	0.5	0.16	ug/L	5/16/05	5/16/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	5/16/05	5/16/05
CLP VOL	cis-1,2-Dichloroethene	59	0.5	0.16	ug/L	5/16/05	5/16/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	5/16/05	5/16/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	5/16/05	5/16/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	5/16/05	5/16/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	5/16/05	5/16/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	5/16/05	5/16/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	5/16/05	5/16/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	5/16/05	5/16/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	5/16/05	5/16/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0515M12  
Instrument: Max  
Sequence: M050501  
Dilution Factor: 1  
Initials: LF

Printed: 5/24/05 11:25:32 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-622

Sample Collection Date: 5/2/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47325

APPL ID: AX19185

QCG: \$C42VT-050515AN-87254

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	100	0.5	0.15	ug/L	5/16/05	5/16/05
CLP VCL	Toluene	Not detected	0.5	0.17	ug/L	5/16/05	5/16/05
CLP VOL	trans-1,2-Dichloroethene	0.24 J	0.5	0.19	ug/L	5/16/05	5/16/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	5/16/05	5/16/05
CLP VOL	Trichloroethene	810 E	0.5	0.16	ug/L	5/16/05	5/16/05
CLP VOL	Vinyl Chloride	0.75	0.5	0.23	ug/L	5/16/05	5/16/05
CLP VOL	Surrogate Recovery (BFB)	104	75-125		%	5/16/05	5/16/05
CLP VOL	Surrogate Recovery (DCA)	101	62-139		%	5/16/05	5/16/05
CLP VOL	Surrogate Recovery (TOL)	101	75-125		%	5/16/05	5/16/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0515M12  
Instrument: Max  
Sequence: M050501  
Dilution Factor: 1  
Initials: LF

Printed: 5/24/05 11:25:32 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-622

Sample Collection Date: 5/2/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47325

APPL ID: AX19185

QCG: \$C42VT-050515AN-87254

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Trichloroethene	790	50	16.00	ug/L	5/16/05	5/16/05
CLP VOL	Surrogate Recovery (BFB)	102	75-125		%	5/16/05	5/16/05
CLP VOL	Surrogate Recovery (DCA)	108	62-139		%	5/16/05	5/16/05
CLP VOL	Surrogate Recovery (TOL)	98.4	75-125		%	5/16/05	5/16/05

Run #: 0515M18  
Instrument: Max  
Sequence: M050501  
Dilution Factor: 100  
Initials: LF

Printed: 5/24/05 11:25:32 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47325

Sample ID: 86-WOPT-623

APPL ID: AX19186

Sample Collection Date: 5/2/05

QCG: \$C42VT-050515AN-87254

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	0.16 J	0.5	0.14	ug/L	5/16/05	5/16/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	5/16/05	5/16/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	240 E	0.5	0.21	ug/L	5/16/05	5/16/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	5/16/05	5/16/05
CLP VOL	1,1-Dichloroethane	1.3	0.5	0.19	ug/L	5/16/05	5/16/05
CLP VOL	1,1-Dichloroethane	14	0.5	0.30	ug/L	5/16/05	5/16/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	5/16/05	5/16/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	5/16/05	5/16/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	5/16/05	5/16/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	5/16/05	5/16/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	5/16/05	5/16/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	5/16/05	5/16/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	5/16/05	5/16/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	5/16/05	5/16/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	5/16/05	5/16/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	5/16/05	5/16/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	5/16/05	5/16/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	5/16/05	5/16/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	5/16/05	5/16/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	5/16/05	5/16/05
CLP VOL	Chloroform	0.50	0.5	0.16	ug/L	5/16/05	5/16/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	5/16/05	5/16/05
CLP VOL	cis-1,2-Dichloroethene	12	0.5	0.16	ug/L	5/16/05	5/16/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	5/16/05	5/16/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	5/16/05	5/16/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	5/16/05	5/16/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	5/16/05	5/16/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	5/16/05	5/16/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	5/16/05	5/16/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	5/16/05	5/16/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	5/16/05	5/16/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0515M13  
Instrument: Max  
Sequence: M050501  
Dilution Factor: 1  
Initials: LF

Printed: 5/23/05 6:46:18 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-623

Sample Collection Date: 5/2/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47325

APPL ID: AX19186

QCG: SC42VT-050515AN-87254

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	330 E	0.5	0.15	ug/L	5/16/05	5/16/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	5/16/05	5/16/05
CLP VOL	trans-1,2-Dichloroethene	0.24 J	0.5	0.19	ug/L	5/16/05	5/16/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	5/16/05	5/16/05
CLP VOL	Trichloroethene	2000 E	0.5	0.16	ug/L	5/16/05	5/16/05
CLP VOL	Vinyl Chloride	0.31 J	0.5	0.23	ug/L	5/16/05	5/16/05
CLP VOL	Surrogate Recovery (BFB)	105	75-125		%	5/16/05	5/16/05
CLP VOL	Surrogate Recovery (DCA)	106	62-139		%	5/16/05	5/16/05
CLP VOL	Surrogate Recovery (TOL)	98.5	75-125		%	5/16/05	5/16/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0515M13  
Instrument: Max  
Sequence: M050501  
Dilution Factor: 1  
Initials: LF

Printed: 5/23/05 6:46:18 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990 086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-623**

Sample Collection Date: 5/2/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47325

**APPL ID: AX19186**

QCG: \$C42VT-050515AN-87254

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	110	100	42.00	ug/L	5/16/05	5/16/05
CLP VOL	Tetrachloroethene	160	100	30.00	ug/L	5/16/05	5/16/05
CLP VOL	Trichloroethene	1400	100	32.00	ug/L	5/16/05	5/16/05
CLP VOL	Surrogate Recovery (BFB)	103	75-125		%	5/16/05	5/16/05
CLP VOL	Surrogate Recovery (DCA)	98.3	62-139		%	5/16/05	5/16/05
CLP VOL	Surrogate Recovery (TOL)	102	75-125		%	5/16/05	5/16/05

Run #: 0515M19  
Instrument: Max  
Sequence: M050501  
Dilution Factor: 200  
Initials: LF

Printed: 5/23/05 6:46:18 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47325

Sample ID: **86-WOPT-624**

APPL ID: **AX19187**

Sample Collection Date: 5/2/05

QCG: \$86TTS-050502BC-86376

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 20.8 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	1.0	ug/Kg	5/2/05	5/2/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.6	ug/Kg	5/2/05	5/2/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.61	ug/Kg	5/2/05	5/2/05
EPA 8260B	1,1-Dichloroethane	Not detected	6	1.4	ug/Kg	5/2/05	5/2/05
EPA 8260B	1,1-Dichloroethene	Not detected	6	1.0	ug/Kg	5/2/05	5/2/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.91	ug/Kg	5/2/05	5/2/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.78	ug/Kg	5/2/05	5/2/05
EPA 8260B	2-Butanone	Not detected	63	0.90	ug/Kg	5/2/05	5/2/05
EPA 8260B	2-Hexanone	Not detected	63	0.20	ug/Kg	5/2/05	5/2/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	63	1.2	ug/Kg	5/2/05	5/2/05
EPA 8260B	Acetone	Not detected	130	3.5	ug/Kg	5/2/05	5/2/05
EPA 8260B	Benzene	Not detected	6	0.80	ug/Kg	5/2/05	5/2/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.87	ug/Kg	5/2/05	5/2/05
EPA 8260B	Bromoform	Not detected	6	1.0	ug/Kg	5/2/05	5/2/05
EPA 8260B	Bromomethane	Not detected	13	2.0	ug/Kg	5/2/05	5/2/05
EPA 8260B	Carbon disulfide	Not detected	6	1.4	ug/Kg	5/2/05	5/2/05
EPA 8260B	Carbon tetrachloride	Not detected	6	1.0	ug/Kg	5/2/05	5/2/05
EPA 8260B	Chlorobenzene	Not detected	6	0.62	ug/Kg	5/2/05	5/2/05
EPA 8260B	Chloroethane	Not detected	6	2.0	ug/Kg	5/2/05	5/2/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	5/2/05	5/2/05
EPA 8260B	Chloromethane	Not detected	6	2.3	ug/Kg	5/2/05	5/2/05
EPA 8260B	cis-1,2-Dichloroethene	Not detected	6	1.4	ug/Kg	5/2/05	5/2/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.59	ug/Kg	5/2/05	5/2/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.1	ug/Kg	5/2/05	5/2/05
EPA 8260B	Ethylbenzene	Not detected	6	0.81	ug/Kg	5/2/05	5/2/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	5/2/05	5/2/05
EPA 8260B	Methylene chloride	Not detected	63	5.8	ug/Kg	5/2/05	5/2/05
EPA 8260B	Styrene	Not detected	6	0.87	ug/Kg	5/2/05	5/2/05
EPA 8260B	Tetrachloroethene	1.6 J	6	0.68	ug/Kg	5/2/05	5/2/05
EPA 8260B	Toluene	Not detected	6	0.82	ug/Kg	5/2/05	5/2/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.7	ug/Kg	5/2/05	5/2/05

J = Estimated value, below quantitation limit.

Run #: 0502C15  
Instrument: Chico  
Sequence: C050501  
Dilution Factor: 1  
Initials: LF

Printed: 5/23/05 6:46:18 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47325

**Sample ID: 86-WOPT-624**

**APPL ID: AX19187**

Sample Collection Date: 5/2/05

QCG: S86TTS-050502BC-86376

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.54	ug/Kg	5/2/05	5/2/05
EPA 8260B	Trichloroethene	Not detected	6	0.90	ug/Kg	5/2/05	5/2/05
EPA 8260B	Vinyl Acetate	Not detected	63	1.3	ug/Kg	5/2/05	5/2/05
EPA 8260B	Vinyl chloride	Not detected	6	2.1	ug/Kg	5/2/05	5/2/05
EPA 8260B	Xylenes	Not detected	19	0.86	ug/Kg	5/2/05	5/2/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	103	52-149		%	5/2/05	5/2/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	87.1	65-135		%	5/2/05	5/2/05
EPA 8260B	Surrogate recovery: Toluene-d8	92.5	65-135		%	5/2/05	5/2/05

J = Estimated value, below quantitation limit.

Run #: 0502C15  
Instrument: Chico  
Sequence: C050501  
Dilution Factor: 1  
Initials: LF

Printed: 5/23/05 6:46:18 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Blenkowski  
Project: 1990.036D WATS Bldg 88 Moffett Airfield

ARF: 47325

Sample ID: 86-WOPT-625

APPL ID: AX19188

Sample Collection Date: 5/2/05

QCG: \$86TTS-050502BC-86376

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 15.9 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	0.96	ug/Kg	5/2/05	5/2/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.5	ug/Kg	5/2/05	5/2/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.57	ug/Kg	5/2/05	5/2/05
EPA 8260B	1,1-Dichloroethane	Not detected	6	1.3	ug/Kg	5/2/05	5/2/05
EPA 8260B	1,1-Dichloroethene	Not detected	6	0.94	ug/Kg	5/2/05	5/2/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.86	ug/Kg	5/2/05	5/2/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.74	ug/Kg	5/2/05	5/2/05
EPA 8260B	2-Butanone	Not detected	59	0.84	ug/Kg	5/2/05	5/2/05
EPA 8260B	2-Hexanone	Not detected	59	0.19	ug/Kg	5/2/05	5/2/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	59	1.1	ug/Kg	5/2/05	5/2/05
EPA 8260B	Acetone	Not detected	120	3.3	ug/Kg	5/2/05	5/2/05
EPA 8260B	Benzene	Not detected	6	0.75	ug/Kg	5/2/05	5/2/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.82	ug/Kg	5/2/05	5/2/05
EPA 8260B	Bromoform	Not detected	6	0.95	ug/Kg	5/2/05	5/2/05
EPA 8260B	Bromomethane	Not detected	12	1.9	ug/Kg	5/2/05	5/2/05
EPA 8260B	Carbon disulfide	Not detected	6	1.3	ug/Kg	5/2/05	5/2/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.95	ug/Kg	5/2/05	5/2/05
EPA 8260B	Chlorobenzene	Not detected	6	0.58	ug/Kg	5/2/05	5/2/05
EPA 8260B	Chloroethane	Not detected	6	1.8	ug/Kg	5/2/05	5/2/05
EPA 8260B	Chloroform	Not detected	6	1.7	ug/Kg	5/2/05	5/2/05
EPA 8260B	Chloromethane	Not detected	6	2.2	ug/Kg	5/2/05	5/2/05
EPA 8260B	cis-1,2-Dichloroethene	4.7 J	6	1.3	ug/Kg	5/2/05	5/2/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.56	ug/Kg	5/2/05	5/2/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.0	ug/Kg	5/2/05	5/2/05
EPA 8260B	Ethylbenzene	Not detected	6	0.76	ug/Kg	5/2/05	5/2/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	5/2/05	5/2/05
EPA 8260B	Methylene chloride	Not detected	59	5.4	ug/Kg	5/2/05	5/2/05
EPA 8260B	Styrene	Not detected	6	0.82	ug/Kg	5/2/05	5/2/05
EPA 8260B	Tetrachloroethene	Not detected	6	0.64	ug/Kg	5/2/05	5/2/05
EPA 8260B	Toluene	Not detected	6	0.77	ug/Kg	5/2/05	5/2/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.6	ug/Kg	5/2/05	5/2/05

J = Estimated value, below quantitation limit.

Run #: 0502C16  
Instrument: Chico  
Sequence: C050501  
Dilution Factor: 1  
Initials: LF

Printed 5/23/05 6:46:18 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-625

Sample Collection Date: 5/2/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47325

APPL ID: AX19188

QCG: S86TTS-050502BC-86376

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.51	ug/Kg	5/2/05	5/2/05
EPA 8260B	Trichloroethene	Not detected	6	0.84	ug/Kg	5/2/05	5/2/05
EPA 8260B	Vinyl Acetate	Not detected	59	1.2	ug/Kg	5/2/05	5/2/05
EPA 8260B	Vinyl chloride	Not detected	6	2.0	ug/Kg	5/2/05	5/2/05
EPA 8260B	Xylenes	Not detected	18	0.81	ug/Kg	5/2/05	5/2/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	96.7	52-149		%	5/2/05	5/2/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	86.6	65-135		%	5/2/05	5/2/05
EPA 8260B	Surrogate recovery: Toluene-d8	99.4	65-135		%	5/2/05	5/2/05

J = Estimated value, below quantitation limit.

Run #: 0502C16  
Instrument: Chico  
Sequence: C050501  
Dilution Factor: 1  
Initials: LF

Printed: 5/23/05 6:46:19 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47325

Sample ID: 86-WOPT-626

APPL ID: AX19189

Sample Collection Date: 5/2/05

QCG: \$86TTS-050503AC-86424

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 19.2 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	1.0	ug/Kg	5/3/05	5/3/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.5	ug/Kg	5/3/05	5/3/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.59	ug/Kg	5/3/05	5/3/05
EPA 8260B	1,1-Dichloroethane	Not detected	6	1.4	ug/Kg	5/3/05	5/3/05
EPA 8260B	1,1-Dichloroethene	Not detected	6	0.98	ug/Kg	5/3/05	5/3/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.89	ug/Kg	5/3/05	5/3/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.77	ug/Kg	5/3/05	5/3/05
EPA 8260B	2-Butanone	Not detected	62	0.88	ug/Kg	5/3/05	5/3/05
EPA 8260B	2-Hexanone	Not detected	62	0.20	ug/Kg	5/3/05	5/3/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	62	1.1	ug/Kg	5/3/05	5/3/05
EPA 8260B	Acetone	23 B J	120	3.5	ug/Kg	5/3/05	5/3/05
EPA 8260B	Benzene	Not detected	6	0.78	ug/Kg	5/3/05	5/3/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.85	ug/Kg	5/3/05	5/3/05
EPA 8260B	Bromoform	Not detected	6	0.99	ug/Kg	5/3/05	5/3/05
EPA 8260B	Bromomethane	Not detected	12	2.0	ug/Kg	5/3/05	5/3/05
EPA 8260B	Carbon disulfide	Not detected	6	1.3	ug/Kg	5/3/05	5/3/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.99	ug/Kg	5/3/05	5/3/05
EPA 8260B	Chlorobenzene	Not detected	6	0.61	ug/Kg	5/3/05	5/3/05
EPA 8260B	Chloroethane	Not detected	6	1.9	ug/Kg	5/3/05	5/3/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	5/3/05	5/3/05
EPA 8260B	Chloromethane	Not detected	6	2.2	ug/Kg	5/3/05	5/3/05
EPA 8260B	cis-1,2-Dichloroethene	Not detected	6	1.3	ug/Kg	5/3/05	5/3/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.58	ug/Kg	5/3/05	5/3/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.0	ug/Kg	5/3/05	5/3/05
EPA 8260B	Ethylbenzene	Not detected	6	0.79	ug/Kg	5/3/05	5/3/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	5/3/05	5/3/05
EPA 8260B	Methylene chloride	Not detected	62	5.7	ug/Kg	5/3/05	5/3/05
EPA 8260B	Styrene	Not detected	6	0.85	ug/Kg	5/3/05	5/3/05
EPA 8260B	Tetrachloroethene	Not detected	6	0.67	ug/Kg	5/3/05	5/3/05
EPA 8260B	Toluene	Not detected	6	0.80	ug/Kg	5/3/05	5/3/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.7	ug/Kg	5/3/05	5/3/05

J = Estimated value, below quantitation limit.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0503C07  
Instrument: Chico  
Sequence: C050501  
Dilution Factor: 1  
Initials: LF

Printed: 5/23/05 6:46 19 PM  
APPL-F1-SC-MCRos/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47325

Sample ID: 86-WOPT-626

APPL ID: AX19189

Sample Collection Date: 5/2/05

QCG: \$86TTS-050503AC-86424

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.53	ug/Kg	5/3/05	5/3/05
EPA 8260B	Trichloroethene	Not detected	6	0.88	ug/Kg	5/3/05	5/3/05
EPA 8260B	Vinyl Acetate	Not detected	62	1.2	ug/Kg	5/3/05	5/3/05
EPA 8260B	Vinyl chloride	Not detected	6	2.1	ug/Kg	5/3/05	5/3/05
EPA 8260B	Xylenes	Not detected	19	0.84	ug/Kg	5/3/05	5/3/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	110	52-149		%	5/3/05	5/3/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	89.8	65-135		%	5/3/05	5/3/05
EPA 8260B	Surrogate recovery: Toluene-d8	89.7	65-135		%	5/3/05	5/3/05

J = Estimated value, below quantitation limit.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0503C07  
Instrument: Chico  
Sequence: C050501  
Dilution Factor: 1  
Initials: LF

Printed 5/23/05 6:46:19 PM  
APPL-F1-SC-MCRos/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47325

Sample ID: 86-WOPT-627

APPL ID: AX19190

Sample Collection Date: 5/2/05

QCG: \$86TTS-050502BC-86376

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 19.7 Percent Moisture )							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	1.0	ug/Kg	5/2/05	5/2/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.5	ug/Kg	5/2/05	5/2/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.60	ug/Kg	5/2/05	5/2/05
EPA 8260B	1,1-Dichloroethane	1.7 J	6	1.4	ug/Kg	5/2/05	5/2/05
EPA 8260B	1,1-Dichloroethene	4.1 J	6	0.98	ug/Kg	5/2/05	5/2/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.90	ug/Kg	5/2/05	5/2/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.77	ug/Kg	5/2/05	5/2/05
EPA 8260B	2-Butanone	Not detected	62	0.88	ug/Kg	5/2/05	5/2/05
EPA 8260B	2-Hexanone	Not detected	62	0.20	ug/Kg	5/2/05	5/2/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	62	1.2	ug/Kg	5/2/05	5/2/05
EPA 8260B	Acetone	Not detected	120	3.5	ug/Kg	5/2/05	5/2/05
EPA 8260B	Benzene	Not detected	6	0.78	ug/Kg	5/2/05	5/2/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.86	ug/Kg	5/2/05	5/2/05
EPA 8260B	Bromoform	Not detected	6	1.0	ug/Kg	5/2/05	5/2/05
EPA 8260B	Bromomethane	Not detected	12	2.0	ug/Kg	5/2/05	5/2/05
EPA 8260B	Carbon disulfide	Not detected	6	1.3	ug/Kg	5/2/05	5/2/05
EPA 8260B	Carbon tetrachloride	Not detected	6	1.0	ug/Kg	5/2/05	5/2/05
EPA 8260B	Chlorobenzene	Not detected	6	0.61	ug/Kg	5/2/05	5/2/05
EPA 8260B	Chloroethane	Not detected	6	1.9	ug/Kg	5/2/05	5/2/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	5/2/05	5/2/05
EPA 8260B	Chloromethane	Not detected	6	2.3	ug/Kg	5/2/05	5/2/05
EPA 8260B	cis-1,2-Dichloroethene	28	6	1.3	ug/Kg	5/2/05	5/2/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.59	ug/Kg	5/2/05	5/2/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.1	ug/Kg	5/2/05	5/2/05
EPA 8260B	Ethylbenzene	Not detected	6	0.80	ug/Kg	5/2/05	5/2/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	5/2/05	5/2/05
EPA 8260B	Methylene chloride	Not detected	62	5.7	ug/Kg	5/2/05	5/2/05
EPA 8260B	Styrene	Not detected	6	0.86	ug/Kg	5/2/05	5/2/05
EPA 8260B	Tetrachloroethene	16	6	0.67	ug/Kg	5/2/05	5/2/05
EPA 8260B	Toluene	Not detected	6	0.81	ug/Kg	5/2/05	5/2/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.7	ug/Kg	5/2/05	5/2/05

J = Estimated value, below quantitation limit.

Run #: 0502C18  
Instrument: Chico  
Sequence: C050501  
Dilution Factor: 1  
Initials: LF

Printed: 5/23/05 6:46:19 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 68 Moffett Airfield

ARF: 47325

Sample ID: 86-WOPT-627

APPL ID: AX19190

Sample Collection Date: 5/2/05

QCG: \$86TTS-050502BC-86373

Method	Analyte	Result	FQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.54	ug/Kg	5/2/05	5/2/05
EPA 8260B	Trichloroethene	21	6	0.68	ug/Kg	5/2/05	5/2/05
EPA 8260B	Vinyl Acetate	Not detected	62	1.2	ug/Kg	5/2/05	5/2/05
EPA 8260B	Vinyl chloride	Not detected	6	2.1	ug/Kg	5/2/05	5/2/05
EPA 8260B	Xylenes	Not detected	19	0.85	ug/Kg	5/2/05	5/2/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	109	52-149		%	5/2/05	5/2/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	87.7	65-135		%	5/2/05	5/2/05
EPA 8260B	Surrogate recovery: Toluene-d8	91.8	65-135		%	5/2/05	5/2/05

J = Estimated value, below quantitation limit.

Run #: 0502C18  
Instrument: Chico  
Sequence: C050501  
Dilution Factor: 1  
Initials: LF

Printed: 5/23/05 6:46:19 PM  
APPL-F1-SC-MCRes/MCPOL-REG MDLs



**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47325

Sample ID: 86-WOPT-628

APPL ID: AX19191

Sample Collection Date: 5/2/05

QCG: \$86TTS-050502BC-86376

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 22.5 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	7	1.0	ug/Kg	5/2/05	5/2/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	7	1.6	ug/Kg	5/2/05	5/2/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	7	0.62	ug/Kg	5/2/05	5/2/05
EPA 8260B	1,1-Dichloroethane	Not detected	7	1.5	ug/Kg	5/2/05	5/2/05
EPA 8260B	1,1-Dichloroethene	2.5 J	7	1.0	ug/Kg	5/2/05	5/2/05
EPA 8260B	1,2-Dichloroethane	Not detected	7	0.93	ug/Kg	5/2/05	5/2/05
EPA 8260B	1,2-Dichloropropane	Not detected	7	0.80	ug/Kg	5/2/05	5/2/05
EPA 8260B	2-Butanone	Not detected	65	0.92	ug/Kg	5/2/05	5/2/05
EPA 8260B	2-Hexanone	Not detected	65	0.21	ug/Kg	5/2/05	5/2/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	65	1.2	ug/Kg	5/2/05	5/2/05
EPA 8260B	Acetone	Not detected	130	3.6	ug/Kg	5/2/05	5/2/05
EPA 8260B	Benzene	Not detected	7	0.81	ug/Kg	5/2/05	5/2/05
EPA 8260B	Bromodichloromethane	Not detected	7	0.89	ug/Kg	5/2/05	5/2/05
EPA 8260B	Bromoform	Not detected	7	1.0	ug/Kg	5/2/05	5/2/05
EPA 8260B	Bromomethane	Not detected	13	2.1	ug/Kg	5/2/05	5/2/05
EPA 8260B	Carbon disulfide	Not detected	7	1.4	ug/Kg	5/2/05	5/2/05
EPA 8260B	Carbon tetrachloride	Not detected	7	1.0	ug/Kg	5/2/05	5/2/05
EPA 8260B	Chlorobenzene	Not detected	7	0.63	ug/Kg	5/2/05	5/2/05
EPA 8260B	Chloroethane	Not detected	7	2.0	ug/Kg	5/2/05	5/2/05
EPA 8260B	Chloroform	Not detected	7	1.8	ug/Kg	5/2/05	5/2/05
EPA 8260B	Chloromethane	Not detected	7	2.4	ug/Kg	5/2/05	5/2/05
EPA 8260B	cis-1,2-Dichloroethene	3.5 J	7	1.4	ug/Kg	5/2/05	5/2/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	7	0.61	ug/Kg	5/2/05	5/2/05
EPA 8260B	Dibromochloromethane	Not detected	7	1.1	ug/Kg	5/2/05	5/2/05
EPA 8260B	Ethylbenzene	Not detected	7	0.83	ug/Kg	5/2/05	5/2/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	7	1.1	ug/Kg	5/2/05	5/2/05
EPA 8260B	Methylene chloride	Not detected	65	5.9	ug/Kg	5/2/05	5/2/05
EPA 8260B	Styrene	Not detected	7	0.89	ug/Kg	5/2/05	5/2/05
EPA 8260B	Tetrachloroethene	23	7	0.70	ug/Kg	5/2/05	5/2/05
EPA 8260B	Toluene	Not detected	7	0.84	ug/Kg	5/2/05	5/2/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	7	1.7	ug/Kg	5/2/05	5/2/05

J = Estimated value, below quantitation limit.

Run #: 0502C19  
Instrument: Chico  
Sequence: C050501  
Dilution Factor: 1  
Initials: LF

Printed: 5/23/05 6:46:19 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 68 Moffett Airfield

ARF: 47325

Sample ID: 85-WOPT-628

APPL ID: AX19191

Sample Collection Date: 5/2/05

QCG: \$96TTS-050502BC-86376

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	7	0.55	ug/Kg	5/2/05	5/2/05
EPA 8260B	Trichloroethene	58	7	0.92	ug/Kg	5/2/05	5/2/05
EPA 8260B	Vinyl Acetate	Not detected	65	1.3	ug/Kg	5/2/05	5/2/05
EPA 8260B	Vinyl chloride	Not detected	7	2.2	ug/Kg	5/2/05	5/2/05
EPA 8260B	Xylenes	Not detected	19	0.88	ug/Kg	5/2/05	5/2/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	99.8	52-149		%	5/2/05	5/2/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	88.9	65-135		%	5/2/05	5/2/05
EPA 8260B	Surrogate recovery: Toluene-d8	91.8	65-135		%	5/2/05	5/2/05

J = Estimated value, below quantitation limit.

Run #: 0502C19  
Instrument: Chico  
Sequence: C050501  
Dilution Factor: 1  
Initials: LF

Printed: 5/23/05 6:46:19 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.096D WATS Bldg 88 Moffett Airfield

ARF: 47325

Sample ID: 86-WOPT-629

APPL ID: AX19192

Sample Collection Date: 5/2/05

QCG: \$86TTS-050502BC-86376

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 19.0 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	1.0	ug/Kg	5/3/05	5/3/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.5	ug/Kg	5/3/05	5/3/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.59	ug/Kg	5/3/05	5/3/05
EPA 8260B	1,1-Dichloroethane	Not detected	6	1.4	ug/Kg	5/3/05	5/3/05
EPA 8260B	1,1-Dichloroethene	Not detected	6	0.98	ug/Kg	5/3/05	5/3/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.89	ug/Kg	5/3/05	5/3/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.77	ug/Kg	5/3/05	5/3/05
EPA 8260B	2-Butanone	Not detected	62	0.88	ug/Kg	5/3/05	5/3/05
EPA 8260B	2-Hexanone	Not detected	62	0.20	ug/Kg	5/3/05	5/3/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	62	1.1	ug/Kg	5/3/05	5/3/05
EPA 8260B	Acetone	Not detected	120	3.5	ug/Kg	5/3/05	5/3/05
EPA 8260B	Benzene	Not detected	6	0.78	ug/Kg	5/3/05	5/3/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.85	ug/Kg	5/3/05	5/3/05
EPA 8260B	Bromoform	Not detected	6	0.99	ug/Kg	5/3/05	5/3/05
EPA 8260B	Bromomethane	Not detected	12	2.0	ug/Kg	5/3/05	5/3/05
EPA 8260B	Carbon disulfide	Not detected	6	1.3	ug/Kg	5/3/05	5/3/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.99	ug/Kg	5/3/05	5/3/05
EPA 8260B	Chlorobenzene	Not detected	6	0.60	ug/Kg	5/3/05	5/3/05
EPA 8260B	Chloroethane	Not detected	6	1.9	ug/Kg	5/3/05	5/3/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	5/3/05	5/3/05
EPA 8260B	Chloromethane	Not detected	6	2.2	ug/Kg	5/3/05	5/3/05
EPA 8260B	cis-1,2-Dichloroethene	Not detected	6	1.3	ug/Kg	5/3/05	5/3/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.58	ug/Kg	5/3/05	5/3/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.0	ug/Kg	5/3/05	5/3/05
EPA 8260B	Ethylbenzene	Not detected	6	0.79	ug/Kg	5/3/05	5/3/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	5/3/05	5/3/05
EPA 8260B	Methylene chloride	Not detected	62	5.6	ug/Kg	5/3/05	5/3/05
EPA 8260B	Styrene	Not detected	6	0.85	ug/Kg	5/3/05	5/3/05
EPA 8260B	Tetrachloroethene	Not detected	6	0.67	ug/Kg	5/3/05	5/3/05
EPA 8260B	Toluene	Not detected	6	0.80	ug/Kg	5/3/05	5/3/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.7	ug/Kg	5/3/05	5/3/05

Run #: 0502C20  
Instrument: Chico  
Sequence: C050501  
Dilution Factor: 1  
Initials: LF

Printed: 5/23/05 6:46:19 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47325

Sample ID: 86-WOPT-629

APPL ID: AX19192

Sample Collection Date: 5/2/05

QCG: \$86TTS-050502BC-86376

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.53	ug/Kg	5/3/05	5/3/05
EPA 8260B	Trichloroethene	23	6	0.88	ug/Kg	5/3/05	5/3/05
EPA 8260B	Vinyl Acetate	Not detected	62	1.2	ug/Kg	5/3/05	5/3/05
EPA 8260B	Vinyl chloride	Not detected	6	2.1	ug/Kg	5/3/05	5/3/05
EPA 8260B	Xylenes	Not detected	19	0.84	ug/Kg	5/3/05	5/3/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	109	52-149		%	5/3/05	5/3/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	94.3	65-135		%	5/3/05	5/3/05
EPA 8260B	Surrogate recovery: Toluene-d8	90.0	65-135		%	5/3/05	5/3/05

Run #: 0502C20  
Instrument: Chico  
Sequence: C050501  
Dilution Factor: 1  
Initials: LF

Printed: 5/23/05 6:46:19 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.085D WATS Bldg 88 Moffett Airfield

ARF: 47325

Sample ID: 86-WOPT-630

APPL ID: AX19193

Sample Collection Date: 5/2/05

QCG: \$86TTW-050523AN-87265

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	5/23/05	5/23/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	5/23/05	5/23/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	5/23/05	5/23/05
EPA 8260B	1,1-Dichloroethane	Not detected	0.5	0.19	ug/L	5/23/05	5/23/05
EPA 8260B	1,1-Dichloroethene	Not detected	0.5	0.30	ug/L	5/23/05	5/23/05
EPA 8260B	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	5/23/05	5/23/05
EPA 8260B	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	5/23/05	5/23/05
EPA 8260B	2-Butanone	Not detected	5	0.6	ug/L	5/23/05	5/23/05
EPA 8260B	2-Hexanone	Not detected	5	0.92	ug/L	5/23/05	5/23/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	5/23/05	5/23/05
EPA 8260B	Acetone	Not detected	5	0.95	ug/L	5/23/05	5/23/05
EPA 8260B	Benzene	Not detected	0.5	0.16	ug/L	5/23/05	5/23/05
EPA 8260B	Bromodichloromethane	Not detected	0.5	0.14	ug/L	5/23/05	5/23/05
EPA 8260B	Bromoform	Not detected	0.5	0.14	ug/L	5/23/05	5/23/05
EPA 8260B	Bromomethane	Not detected	1	0.24	ug/L	5/23/05	5/23/05
EPA 8260B	Carbon disulfide	Not detected	0.5	0.2	ug/L	5/23/05	5/23/05
EPA 8260B	Carbon tetrachloride	Not detected	0.5	0.10	ug/L	5/23/05	5/23/05
EPA 8260B	Chlorobenzene	Not detected	0.5	0.21	ug/L	5/23/05	5/23/05
EPA 8260B	Chloroethane	Not detected	0.5	0.21	ug/L	5/23/05	5/23/05
EPA 8260B	Chloroform	0.17 J	0.5	0.16	ug/L	5/23/05	5/23/05
EPA 8260B	Chloromethane	Not detected	0.5	0.31	ug/L	5/23/05	5/23/05
EPA 8260B	cis-1,2-Dichloroethene	Not detected	0.5	0.16	ug/L	5/23/05	5/23/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	5/23/05	5/23/05
EPA 8260B	Dibromochloromethane	Not detected	0.5	0.19	ug/L	5/23/05	5/23/05
EPA 8260B	Ethylbenzene	Not detected	0.5	0.23	ug/L	5/23/05	5/23/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	5/23/05	5/23/05
EPA 8260B	Methylene chloride	Not detected	5	0.35	ug/L	5/23/05	5/23/05
EPA 8260B	Styrene	Not detected	0.5	0.25	ug/L	5/23/05	5/23/05
EPA 8260B	Tetrachloroethene	Not detected	0.5	0.15	ug/L	5/23/05	5/23/05
EPA 8260B	Toluene	Not detected	0.5	0.17	ug/L	5/23/05	5/23/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	0.5	0.19	ug/L	5/23/05	5/23/05

J = Estimated value, below quantitation limit.

Run #: 0523N19  
Instrument: Neo  
Sequence: N050523  
Dilution Factor: 1  
Initials: LF

Printed: 5/24/05 9:14 50 AM  
APPL-F1-SC-MCRes/MCPL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47325

Sample ID: 86-WOPT-630

APPL ID: AX19193

Sample Collection Date: 5/2/05

QCG: \$65TTW-050523AN-87265

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	5/23/05	5/23/05
EPA 8260B	Trichloroethene	Not detected	0.5	0.16	ug/L	5/23/05	5/23/05
EPA 8260B	Vinyl Acetate	Not detected	5	0.31	ug/L	5/23/05	5/23/05
EPA 8260B	Vinyl chloride	Not detected	0.5	0.23	ug/L	5/23/05	5/23/05
EPA 8260B	Xylenes	Not detected	1.5	0.19	ug/L	5/23/05	5/23/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	99.1	62-139		%	5/23/05	5/23/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	101	75-125		%	5/23/05	5/23/05
EPA 8260B	Surrogate recovery: Toluene-d8	103	75-125		%	5/23/05	5/23/05

J = Estimated value, below quantitation limit.

Run #: 0523N19  
Instrument: Neo  
Sequence: N050523  
Dilution Factor: 1  
Initials: LF

Printed: 5/24/05 9:14:50 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47325

Sample ID: 36-WOPT-617

APPL ID: AX19180

Sample Collection Date: 5/2/05

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	458	25	0.14	mg/L	5/9/05	5/19/05
6010B	Calcium (Ca)	386 E	5	0.0272	mg/L	5/9/05	5/10/05
6010B	Iron (Fe)	22.1	0.1	0.0258	mg/L	5/9/05	5/10/05
6010B	Magnesium (Mg)	123	25	0.065	mg/L	5/9/05	5/19/05
6010B	Magnesium (Mg)	102 E	5	0.0129	mg/L	5/9/05	5/10/05
6010B	Potassium (K)	7.5	5	0.0995	mg/L	5/9/05	5/10/05
6010B	Sodium (Na)	40.7	5	0.1111	mg/L	5/9/05	5/10/05

E = The reported value exceeds linear range.

Printed: 5/24/05 1:06:11 PM

2L-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-618**

Sample Collection Date: 5/2/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47325

**APPL ID: AX19181**

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	424	25	0.14	mg/L	5/9/05	5/19/05
6010B	Calcium (Ca)	379 E	5	0.0272	mg/L	5/9/05	5/10/05
6010B	Iron (Fe)	65.0	0.50	0.13	mg/L	5/9/05	5/19/05
6010B	Iron (Fe)	54.2 E	0.1	0.0258	mg/L	5/9/05	5/10/05
6010B	Magnesium (Mg)	81.4	5	0.0129	mg/L	5/9/05	5/10/05
6010B	Potassium (K)	4.8 J	5	0.0895	mg/L	5/9/05	5/10/05
6010B	Sodium (Na)	39.8	5	0.1111	mg/L	5/9/05	5/10/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

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2L-F1-SC-MCRes/MCPQL-REG MDLs



## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47325

**Sample ID: 86-WOPT-619**

**APPL ID: AX19182**

Sample Collection Date: 5/2/05

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	244	25	0.14	mg/L	5/9/05	5/19/05
6010B	Calcium (Ca)	239 E	5	0.0272	mg/L	5/9/05	5/18/05
6010B	Iron (Fe)	11.2	0.1	0.0258	mg/L	5/9/05	5/18/05
6010B	Magnesium (Mg)	60.3	5	0.0129	mg/L	5/9/05	5/18/05
6010B	Potassium (K)	3.0 J	5	0.0995	mg/L	5/9/05	5/18/05
6010B	Sodium (Na)	36.8	5	0.1111	mg/L	5/9/05	5/18/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

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<sup>2</sup>L-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47325

**Sample ID: 86-WOPT-620**

**APPL ID: AX19183**

Sample Collection Date: 5/2/05

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	483	25	0.14	mg/L	5/9/05	5/19/05
6010B	Calcium (Ca)	444 E	5	0.0272	mg/L	5/9/05	5/18/05
6010B	Iron (Fe)	23.3	0.1	0.0258	mg/L	5/9/05	5/18/05
6010B	Magnesium (Mg)	123	25	0.065	mg/L	5/9/05	5/19/05
6010B	Magnesium (Mg)	113 E	5	0.0129	mg/L	5/9/05	5/18/05
6010B	Potassium (K)	7.5	5	0.0995	mg/L	5/9/05	5/18/05
6010B	Sodium (Na)	41.5	5	0.1111	mg/L	5/9/05	5/18/05

E = The reported value exceeds linear range.

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2L-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-621**

Sample Collection Date: 5/2/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47325

**APPL ID: AX19184**

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	466	25	0.14	mg/L	5/9/05	5/19/05
6010B	Calcium (Ca)	416 E	5	0.0272	mg/L	5/9/05	5/18/05
6010B	Iron (Fe)	12.1	0.1	0.0258	mg/L	5/9/05	5/18/05
6010B	Magnesium (Mg)	92.1	5	0.0129	mg/L	5/9/05	5/18/05
6010B	Potassium (K)	7.2	5	0.0995	mg/L	5/9/05	5/18/05
6010B	Sodium (Na)	40.7	5	0.1111	mg/L	5/9/05	5/18/05

E = The reported value exceeds linear range.

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<sup>2</sup>L-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-622**

Sample Collection Date: 5/2/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47325

**APPL ID: AX19185**

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	162	25	0.14	mg/L	5/9/05	5/19/05
6010B	Calcium (Ca)	148 E	5	0.0272	mg/L	5/9/05	5/18/05
6010B	Iron (Fe)	8.0	0.1	0.0258	mg/L	5/9/05	5/18/05
6010B	Magnesium (Mg)	47.5	5	0.0129	mg/L	5/9/05	5/18/05
6010B	Potassium (K)	2.8 J	5	0.0995	mg/L	5/9/05	5/18/05
6010B	Sodium (Na)	35.9	5	0.1111	mg/L	5/9/05	5/18/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

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2L-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech: FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-623**

Sample Collection Date: 5/2/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47325

**APPL ID: AX19186**

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	503	50	0.27	mg/L	5/9/05	5/23/05
6010B	Calcium (Ca)	537 E	5	0.0272	mg/L	5/9/05	5/18/05
6010B	Iron (Fe)	9.2	0.1	0.0258	mg/L	5/9/05	5/18/05
6010B	Magnesium (Mg)	125	25	0.065	mg/L	5/9/05	5/19/05
6010B	Magnesium (Mg)	112 E	5	0.0129	mg/L	5/9/05	5/18/05
6010B	Potassium (K)	8.0	5	0.0995	mg/L	5/9/05	5/18/05
6010B	Sodium (Na)	45.0	5	0.1111	mg/L	5/9/05	5/18/05

E = The reported value exceeds linear range.

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2L-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-617

Sample Collection Date: 5/2/2005

APPL ID: AX19180

ARF: 47325

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	28800	1000	80	ug/L	5/3/2005	5/3/2005
EPA 300.0	Nitrate	1100 J	200	15	ug/L	5/3/2005	5/3/2005
EPA 300.0	Nitrite	Not detected	100	33	ug/L	5/3/2005	5/3/2005
EPA 300.0	Sulfate	445000 E	1000	90	ug/L	5/3/2005	5/3/2005
EPA 300.0	Sulfate	380000	5000	450	ug/L	5/3/2005	5/3/2005
EPA 310.1	Bicarbonate	320	5	0.787	mg/L	5/11/2005	5/11/2005
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	5/11/2005	5/11/2005

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-618

Sample Collection Date: 5/2/05

APPL ID: AX19181

ARF: 47325

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	37400	1000	80	ug/L	5/3/05	5/3/05
EPA 300.0	Nitrate	Not detected	200	15	ug/L	5/3/05	5/3/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	5/3/05	5/3/05
EPA 300.0	Sulfate	389000 E	1000	90	ug/L	5/3/05	5/3/05
EPA 300.0	Sulfate	324000	5000	450	ug/L	5/3/05	5/3/05
EPA 310.1	Bicarbonate	321	5	0.787	mg/L	5/11/05	5/11/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	5/11/05	5/11/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-619

Sample Collection Date: 5/2/2005

**APPL ID: AX19182**

ARF: 47325

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	34000	1000	80	ug/L	5/3/2005	5/3/2005
EPA 300.0	Nitrate	1350 J	200	15	ug/L	5/3/2005	5/3/2005
EPA 300.0	Nitrite	Not detected	100	33	ug/L	5/3/2005	5/3/2005
EPA 300.0	Sulfate	285000 E	1000	90	ug/L	5/3/2005	5/3/2005
EPA 300.0	Sulfate	239000	5000	450	ug/L	5/3/2005	5/3/2005
EPA 310.1	Bicarbonate	257	5	0.787	mg/L	5/11/2005	5/11/2005
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	5/11/2005	5/11/2005

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDL:



## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-620

Sample Collection Date: 5/2/05

APPL ID: AX19183

ARF: 47325

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	35800	1000	80	ug/L	5/3/05	5/3/05
EPA 300.0	Nitrate	3110	200	15	ug/L	5/3/05	5/3/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	5/3/05	5/3/05
EPA 300.0	Sulfate	316000	1000	90	ug/L	5/3/05	5/3/05
EPA 300.0	Sulfate	263000	5000	450	ug/L	5/3/05	5/3/05
EPA 310.1	Bicarbonate	268	5	0.787	mg/L	5/11/05	5/11/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	5/11/05	5/11/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-621

Sample Collection Date: 5/2/05

APPL ID: AX19184

ARF: 47325

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	35800	1000	80	ug/L	5/3/05	5/3/05
EPA 300.0	Nitrate	3200	200	15	ug/L	5/3/05	5/3/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	5/3/05	5/3/05
EPA 300.0	Sulfate	315000 E	1000	90	ug/L	5/3/05	5/3/05
EPA 300.0	Sulfate	264000	5000	450	ug/L	5/3/05	5/3/05
EPA 310.1	Bicarbonate	268	5	0.787	mg/L	5/11/05	5/11/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	5/11/05	5/11/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-622

Sample Collection Date: 5/2/05

APPL ID: AX19185

ARF: 47325

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	32800	1000	80	ug/L	5/3/05	5/3/05
EPA 300.0	Nitrate	3090	200	15	ug/L	5/3/05	5/3/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	5/3/05	5/3/05
EPA 300.0	Sulfate	222000 E	1000	90	ug/L	5/3/05	5/3/05
EPA 300.0	Sulfate	186000	5000	450	ug/L	5/3/05	5/3/05
EPA 310.1	Bicarbonate	244	5	0.787	mg/L	5/11/05	5/11/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	5/11/05	5/11/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-623

Sample Collection Date: 5/2/05

APPL ID: AX19186

ARF: 47325

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	29400	1000	80	ug/L	5/3/05	5/3/05
EPA 300.0	Nitrate	4270	200	15	ug/L	5/3/05	5/3/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	5/3/05	5/3/05
EPA 300.0	Sulfate	160000 E	1000	90	ug/L	5/3/05	5/3/05
EPA 300.0	Sulfate	146000	2000	180	ug/L	5/3/05	5/3/05
EPA 310.1	Bicarbonate	233	5	0.787	mg/L	5/11/05	5/11/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	5/11/05	5/11/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-624**

Sample Collection Date: 5/2/05

APPL ID: AX19187

ARF: 47325

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 20.8 Percent Moisture.)							
CLP MOIST	Moisture	20.8	2.0		%	5/3/05	5/3/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-625**

**APPL ID: AX19188**

Sample Collection Date: 5/2/05

ARF: 47325

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 15.9 Percent Moisture.)							
CLP MOIST	Moisture	15.9	2.0		%	5/3/05	5/3/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-626

Sample Collection Date: 5/2/05

APPL ID: AX19189

ARF: 47325

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 19.2 Percent Moisture.)							
CLP MOIST	Moisture	19.2	2.0		%	5/3/05	5/3/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-627

Sample Collection Date: 5/2/05

APPL ID: AX19150

ARF: 47325

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 19.7 Percent Moisture.)							
CLP MOIST	Moisture	19.7	2.0		%	5/3/05	5/3/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs



## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-628

Sample Collection Date: 5/2/05

APPL ID: AX19191

ARF: 47325

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 22.5 Percent Moisture.)							
CLP MOIST	Moisture	22.5	2.0		%	5/3/05	5/3/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-629**

**APPL ID: AX19192**

Sample Collection Date: 5/2/05

ARF: 47325

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 19.0 Percent Moisture.)							
CLP MOIST	Moisture	19.0	2.0		%	5/3/05	5/3/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-630

Sample Collection Date: 5/2/05

APPL ID: AX19193

ARF: 47325

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
SW846 9060	Total Organic Carbon	1.7	0.5	0.129	mg/L	5/23/05	5/23/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs



May 19, 2005

Service Request No: K2503254

Robert Wise  
APPL, Inc.  
4203 W. Swift Avenue  
Fresno, CA 93722

**RE: 47325**

Dear Robert:

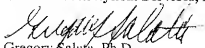
Enclosed are the results of the sample(s) submitted to our laboratory on May 5, 2005. For your reference, these analyses have been assigned our service request number K2503254.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3376.

Respectfully submitted,

**Columbia Analytical Services, Inc.**

  
Gregory Salata, Ph.D.  
Project Chemist

GS/jeb

Page 1 of 15

COLUMBIA ANALYTICAL SERVICES, INC.

Client: Agriculture & Priority Pollutants Labs  
Project: 47325  
Sample Matrix: Soil

Service Request No.: K2503254  
Date Received: 05/05/05

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier III validation deliverables including summary forms and all of the associated raw data for each of the analyses. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Six soil samples were received for analysis at Columbia Analytical Services on 05/05/05. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

General Chemistry Parameters

No anomalies associated with the analysis of these samples were observed.

Approved by

Date

5/19/05

30015

## COLUMBIA ANALYTICAL SERVICES, INC.

## Analytical Report

Client : Agriculture & Priority Pollutants Labs  
 Project Name : NA  
 Project Number : 47325  
 Sample Matrix : SOIL

Service Request : K2502254  
 Date Collected : 05/13/05  
 Date Received : 05/05/05

## Carbon, Total Organic

Units : mg Kg (ppm)  
 Basis : Dry

Analysis Method : Walkley-Black  
 Test Notes :

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
86-WOPT-624	K2503254-001	2000	900	1	05/16/05	2210	
86-WOPT-625	K2503254-002	2000	900	1	05/16/05	3430	
86-WOPT-626	K2503254-003	2000	900	1	05/16/05	2380	
86-WOPT-627	K2503254-004	2000	900	1	05/16/05	1030	J
86-WOPT-628	K2503254-005	2000	900	1	05/16/05	1540	J
86-WOPT-628	K2503254-006	2000	900	1	05/16/05	2780	
86-WOPT-629	K2503254-006	2000	900	1	05/16/05	ND	
Method Blank	K2503254-MB	2000	900	1			

40010

ORIGINAL

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Air Field, Building 88, CTO 86  
**Collection Date:** May 2, 2005  
**LDC Report Date:** May 27, 2005  
**Matrix:** Water  
**Parameters:** Volatiles  
**Validation Level:** EPA Level III & IV  
**Laboratory:** APPL, Inc.

**Sample Delivery Group (SDG):** 47325

**Sample Identification**

86-WOPT-616  
86-WOPT-617\*\*  
86-WOPT-617DL\*\*  
86-WOPT-618  
86-WOPT-618DL  
86-WOPT-619  
86-WOPT-620  
86-WOPT-620DL  
86-WOPT-621\*\*  
86-WOPT-621DL\*\*  
86-WOPT-622  
86-WOPT-622DL  
86-WOPT-623  
86-WOPT-623DL

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 14 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Contract Laboratory Program Statement of Work (SOW) OLM04.2 for Volatiles.

This review follows USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999); the following subsections correlate to the above guidelines.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.



## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 30.0% for all compounds.

Average relative response factors (RRF) for all volatile target compounds and system monitoring compounds were within validation criteria.

## IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 25.0% with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
5/15/05	Chloromethane	28	86-WOPT-616 86-WOPT-617**	J (all detects) UJ (all non-detects)	A
	4-Methyl-2-pentanone	30	86-WOPT-618 86-WOPT-619 86-WOPT-620 86-WOPT-621** 86-WOPT-622 86-WOPT-623 050515W	J (all detects) UJ (all non-detects)	

All of the continuing calibration RRF values were within validation criteria.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the SOW. All surrogate recoveries (%R) were within QC limits.

## VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## VIII. Laboratory Control Samples (LCS)

Although laboratory control samples were not required by the method, laboratory control samples were reported by the laboratory. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## IX. Regional Quality Assurance and Quality Control

Not applicable.

## X. Internal Standards

All internal standard areas and retention times were within QC limits.

## XI. Target Compound Identifications

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
86-WOPT-617**	cis-1,2-Dichloroethene Trichloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects)	A
86-WOPT-618 86-WOPT-620 86-WOPT-621**	cis-1,2-Dichloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	A

Sample	Compound	Finding	Criteria	Flag	A or P
86-WOPT-622	Trichloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all defects)	A
86-WOPT-623	1,1,2-Trichloro-1,2,2-trifluoroethane Tetrachloroethene Trichloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all defects) J (all defects) J (all defects)	A

Raw data were not evaluated for the samples reviewed by Level III criteria.

### XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

### XIV. System Performance

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

### XV. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### XVI. Field Duplicates

Samples 86-WOPT-620 and 86-WOPT-621\*\* and samples 86-WOPT-620DL and 86-WOPT-621DL\*\* were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	86-WOPT-620	86-WOPT-621**	
1,1,1-Trichloroethane	0.21	0.22	5
1,1,2-Trichloro-1,2,2-trifluoroethane	46	43	7
1,1-Dichloroethane	19	18	5
1,1-Dichloroethene	40	39	3
1,1,2-Trichloroethane	0.26	0.5U	Not calculable

Compound	Concentration (ug/L)		RPD
	86-WOPT-620	86-WOPT-621**	
Chloroform	0.34	0.36	6
cis-1,2-Dichloroethene	300	290	3
Tetrachloroethene	53	54	2
trans-1,2-Dichloroethene	0.44	0.48	9
Trichloroethene	28	27	4
Vinyl chloride	2.2	2.0	10

Compound	Concentration (ug/L)		RPD
	86-WOPT-620DL	86-WOPT-621DL**	
cis-1,2-Dichloroethene	350	330	6

## XVII. Field Blanks

Sample 86-WOPT-616 was identified as a trip blank. No volatile contaminants were found in this blank.

**Moffett Air Field, Building 88, CTO 86**  
**Volatiles - Data Qualification Summary - SDG 47325**

SDG	Sample	Compound	Flag	A or P	Reason
47325	86-WOPT-616 86-WOPT-617** 86-WOPT-618 86-WOPT-619 86-WOPT-620 86-WOPT-621** 86-WOPT-622 86-WOPT-623	Chloromethane  4-Methyl-2-pentanone	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
47325	86-WOPT-617**	cis-1,2-Dichloroethene Trichloroethene	J (all detects) J (all detects)	A	Compound quantitation and CRQLs
47325	86-WOPT-618 86-WOPT-620 86-WOPT-621**	cis-1,2-Dichloroethene	J (all detects)	A	Compound quantitation and CRQLs
47325	86-WOPT-622	Trichloroethene	J (all detects)	A	Compound quantitation and CRQLs
47325	86-WOPT-623	1,1,2-Trichloro-1,2,2-trifluoroethane Tetrachloroethene Trichloroethene	J (all detects) J (all detects) J (all detects)	A	Compound quantitation and CRQLs

**Moffett Air Field, Building 88, CTO 86**  
**Volatiles - Laboratory Blank Data Qualification Summary - SDG 47325**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.**  
**Data Validation Report**

**Project/Site Name:** Moffett Air Field, Building 88, CTO 86

**Collection Date:** May 2, 2005

**LDC Report Date:** May 27, 2005

**Matrix:** Soil/Water

**Parameters:** Volatiles

**Validation Level:** EPA Level III & IV

**Laboratory:** APPL, Inc.

**Sample Delivery Group (SDG):** 47325

**Sample Identification**

86-WOPT-624

86-WOPT-625

86-WOPT-626\*\*

86-WOPT-627

86-WOPT-628

86-WOPT-629

86-WOPT-630

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 6 soil samples and one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 15.0% for each individual compound and less than or equal to 30.0% for calibration check compounds (CCCs).

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination ( $r^2$ ) was greater than or equal to 0.990 .

Average relative response factors (RRF) for all system performance check compounds (SPCCs) were within method and validation criteria.

## IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 20.0% for all compounds with the following exceptions:

Date	Compound	%D	Associated Sample	Flag	A or P
5/3/05	Bromomethane	22	86-WOPT-626** 050503S	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A
5/2/05	Bromomethane	24	86-WOPT-624 86-WOPT-625 86-WOPT-627 86-WOPT-829 050502S	J (all detects) UJ (all non-detects)	A



All of the continuing calibration RRF values for all system performance check compounds (SPCCs) were within method and validation criteria.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Analysis Date	Compound TIC (RT in minutes)	Concentration	Associated Samples
050503S	5/3/05	Acetone	17 ug/Kg	86-WOPT-626**

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
86-WOPT-626**	Acetone	23 ug/Kg	120U ug/Kg

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## IX. Regional Quality Assurance and Quality Control

Not applicable.

## X. Internal Standards

All internal standard areas and retention times were within QC limits.

## **XI. Target Compound Identifications**

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XII. Compound Quantitation and CRQLs**

All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XIII. Tentatively Identified Compounds (TICs)**

Tentatively identified compounds were not reported by the laboratory.

## **XIV. System Performance**

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## **XV. Overall Assessment**

Data flags are summarized at the end of this report if data has been qualified.

## **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

## **XVII. Field Blanks**

Sample 86-WOPT-630 was identified as an equipment rinse. No volatile contaminants were found in this blank with the following exceptions:

Equipment Rinse ID	Compound	Concentration (ug/L)
86-WOPT-630	Chloroform	0.17

**Moffett Air Field, Building 88, CTO 86**  
**Volatiles - Data Qualification Summary - SDG 47325**

SDG	Sample	Compound	Flag	A or P	Reason
47325	86-WOPT-626**	Bromomethane Acetone	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
47325	86-WOPT-624 86-WOPT-625 86-WOPT-627 86-WOPT-628 86-WOPT-629	Bromomethane	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)

**Moffett Air Field, Building 88, CTO 86**  
**Volatiles - Laboratory Blank Data Qualification Summary - SDG 47325**

SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P
47325	86-WOPT-626**	Acetone	120U ug/Kg	A

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Air Field, Building 88, CTO 86  
**Collection Date:** May 2, 2005  
**LDC Report Date:** May 27, 2005  
**Matrix:** Water  
**Parameters:** Metals  
**Validation Level:** EPA Level III & IV  
**Laboratory:** APPL, Inc.

**Sample Delivery Group (SDG):** 47325

**Sample Identification**

86-WOPT-617\*\*  
86-WOPT-618  
86-WOPT-619  
86-WOPT-620  
86-WOPT-621\*\*  
86-WOPT-622  
86-WOPT-623  
86-WOPT-617DL\*\*  
86-WOPT-618DL  
86-WOPT-619DL  
86-WOPT-620DL  
86-WOPT-621DL\*\*  
86-WOPT-622DL  
86-WOPT-623DL

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 14 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 6010B for Metals. The metals analyzed were Calcium, Iron, Magnesium, Potassium, and Sodium.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

## III. Blanks

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Potassium	0.12 mg/L	86-WOPT-617** 86-WOPT-618 86-WOPT-619 86-WOPT-620 86-WOPT-621** 86-WOPT-622 86-WOPT-623
ICB/CCB	Magnesium	13 ug/L	86-WOPT-619 86-WOPT-620 86-WOPT-621** 86-WOPT-622 86-WOPT-623

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks.

## IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

## V. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
86-WOPT-663MS/MSD (86-WOPT-617** 86-WOPT-618 86-WOPT-619 86-WOPT-620 86-WOPT-621** 86-WOPT-622 86-WOPT-623 86-WOPT-617DL** 86-WOPT-620DL 86-WOPT-623DL)	Magnesium	132 (80-120)	164 (80-120)	-	J (all detects)	A
86-WOPT-663MS/MSD (86-WOPT-617** 86-WOPT-618 86-WOPT-619 86-WOPT-620 86-WOPT-621** 86-WOPT-622 86-WOPT-623)	Sodium Potassium	132 (80-120) -	132 (80-120) 130 (80-120)	- -	J (all detects) J (all detects)	A

## VI. Duplicate Sample Analysis

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

## VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Internal Standards

ICP-MS was not utilized in this SDG.

## IX. Furnace Atomic Absorption QC

Graphite furnace atomic absorption was not utilized in this SDG.

## X. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met with the following exceptions:

Diluted Sample	Analyte	%D (Limits)	Associated Samples	Flag	A or P
86-WOPT-663L	Iron	12.0 ( $\leq 10$ )	86-WOPT-617** 86-WOPT-618 86-WOPT-619 86-WOPT-620 86-WOPT-621** 86-WOPT-622 86-WOPT-623 86-WOPT-618DL	J (all detects)	A

## XI. Sample Result Verification

All sample result verification met validation criteria with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
86-WOPT-617** 86-WOPT-620 86-WOPT-623	Calcium Magnesium	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects)	A
86-WOPT-618	Calcium Iron	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects)	A
86-WOPT-619 86-WOPT-621** 86-WOPT-622	Calcium	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	A

Raw data were not evaluated for samples reviewed by Level III criteria.

## XII. Overall Assessment of Data

Data flags have been summarized at the end of this report.

## XIII. Field Duplicates

Samples 86-WOPT-620 and 86-WOPT-621\*\*, samples 86-WOPT-620DL and 86-WOPT-621DL\*\*, and samples 86-WOPT-620DL and 86-WOPT-621\*\* were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:



Compound	Concentration (mg/L)		RPD
	86-WOPT-620	86-WOPT-621**	
Calcium	444	416	7
Iron	23.3	12.1	63
Magnesium	113	92.1	20
Potassium	7.5	7.2	4
Sodium	41.5	40.7	2

Compound	Concentration (mg/L)		RPD
	86-WOPT-620DL	86-WOPT-621DL**	
Calcium	483	466	4

Compound	Concentration (mg/L)		RPD
	86-WOPT-620DL	86-WOPT-621**	
Magnesium	123	92.1	29

#### XIV. Field Blanks

No field blanks were identified in this SDG.

**Moffett Air Field, Building 88, CTO 86**  
**Metals - Data Qualification Summary - SDG 47325**

SDG	Sample	Analyte	Flag	A or P	Reason
47325	86-WOPT-617** 86-WOPT-618 86-WOPT-619 86-WOPT-620 86-WOPT-621** 86-WOPT-622 86-WOPT-623 86-WOPT-617DL** 86-WOPT-620DL 86-WOPT-623DL	Magnesium	J (all detects)	A	Matrix spike/Matrix spike duplicates (%R)
47325	86-WOPT-617** 86-WOPT-618 86-WOPT-619 86-WOPT-620 86-WOPT-621** 86-WOPT-622 86-WOPT-623	Sodium Potassium	J (all detects) J (all detects)	A	Matrix spike/Matrix spike duplicates (%R)
47325	86-WOPT-617** 86-WOPT-618 86-WOPT-619 86-WOPT-620 86-WOPT-621** 86-WOPT-622 86-WOPT-623 86-WOPT-618DL	Iron	J (all detects) UJ (all non-detects)	A	ICP serial dilution (%D)
47325	86-WOPT-617** 86-WOPT-620 86-WOPT-623	Calcium Magnesium	J (all detects) J (all detects)	A	Sample result verification
47325	86-WOPT-618	Calcium Iron	J (all detects) J (all detects)	A	Sample result verification
47325	86-WOPT-619 86-WOPT-621** 86-WOPT-622	Calcium	J (all detects)	A	Sample result verification

**Moffett Air Field, Building 88, CTO 86**  
**Metals - Laboratory Blank Data Qualification Summary - SDG 47325**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Air Field, Building 88, CTO 86  
**Collection Date:** May 2, 2005  
**LDC Report Date:** May 27, 2005  
**Matrix:** Soil/Water  
**Parameters:** Wet Chemistry  
**Validation Level:** EPA Level III & IV  
**Laboratory:** APPL, Inc./Columbia Analytical Services, Inc.

**Sample Delivery Group (SDG):** 47235/K2503254

**Sample Identification**

86-WOPT-617**	86-WOPT-623DL
86-WOPT-618	86-WOPT-622MS
86-WOPT-619	86-WOPT-624DUP
86-WOPT-620	
86-WOPT-621**	
86-WOPT-622	
86-WOPT-623	
86-WOPT-624	
86-WOPT-625	
86-WOPT-626**	
86-WOPT-627	
86-WOPT-628	
86-WOPT-629	
86-WOPT-630	
86-WOPT-617DL**	
86-WOPT-618DL	
86-WOPT-619DL	
86-WOPT-620DL	
86-WOPT-621DL**	
86-WOPT-622DL	

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 7 soil samples and 16 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 300.0 for Chloride, Nitrate, Nitrite, and Sulfate, EPA Method 310.1 for Carbonate and Bicarbonate, and Walkley-Black method and EPA SW 846 Method 9060 for Total Organic Carbon.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section IX.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Calibration**

### **a. Initial Calibration**

All criteria for the initial calibration of each method were met.

### **b. Calibration Verification**

Calibration verification frequency and analysis criteria were met for each method when applicable.

## **III. Blanks**

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the method blanks.

## **IV. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **V. Duplicates**

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## **VI. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VII. Sample Result Verification**

All sample result verification met validation criteria with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
86-WOPT-617** 86-WOPT-618 86-WOPT-619 86-WOPT-620 86-WOPT-621** 86-WOPT-622 86-WOPT-623	Sulfate	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	A

Raw data were not evaluated for the samples reviewed by Level III criteria.

## VIII. Overall Assessment of Data

Data flags are summarized at the end of this report.

## IX. Field Duplicates

Samples 86-WOPT-620 and 86-WOPT-621\*\* and samples 86-WOPT-620DL and 86-WOPT-621DL\*\* were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration (ug/L)		RPD
	86-WOPT-620	86-WOPT-621**	
Chloride	35800	35800	0
Nitrate as N	3110	3200	3
Sulfate	316000	315000	0

Analyte	Concentration (mg/L)		RPD
	86-WOPT-620	86-WOPT-621**	
Bicarbonate	268	268	0

Analyte	Concentration (ug/L)		RPD
	86-WOPT-620DL	86-WOPT-621DL**	
Sulfate	263000	264000	0

## X. Field Blanks

Sample 86-WOPT-630 was identified as an equipment rinsate. No contaminant concentrations were found in this blank with the following exceptions:

Equipment Rinsate ID	Analyte	Concentration (mg/L)
86-WOPT-630	Total organic carbon	1.7

**Moffett Air Field, Building 88, CTO 86**

**Wet Chemistry - Data Qualification Summary - SDG 47235/K2503254**

SDG	Sample	Analyte	Flag	A or P	Reason
47235/ K2503254	86-WOPT-617** 86-WOPT-618 86-WOPT-619 86-WOPT-620 86-WOPT-621** 86-WOPT-622 86-WOPT-623	Sulfate	J (all detects)	A	Sample result verification

**Moffett Air Field, Building 88, CTO 86**

**Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 47235/K2503254**

No Sample Data Qualified in this SDG





## CHAIN-OF-CUSTODY RECORD

## CHAIN-OF-CUSTODY RECORD

[illegible]

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management

004926-12



**TETRA TECH**  
13300 W. Meeker Rd.  
Littleton, CO 80120 (303) 244-6694

# CHAIN-OF-CUSTODY RECORD

NUMBER 10778

PROJECT NAME		PURCHASE ORDER NO.		ANALYSES REQUIRED		LABORATORY NAME		Project Information Section	
PROJECT LOCATION		PROJECT NO.		PROJECT CONTACT PHONE NUMBER		LABORATORY ID (Per Laboratory)		Do not submit to Laboratory	
SAMPLER NAME		AIRBILL NUMBER		PROJECT CONTACT PHONE NUMBER		COMMENTS		LOCATION	
DATE COLLECTED		TIME COLLECTED		NO OF CONTAINERS		LEVEL		DEPTH	
SAMPLE ID		DATE COLLECTED		TIME COLLECTED		NO OF CONTAINERS		START	
DATE COLLECTED		TIME COLLECTED		NO OF CONTAINERS		LEVEL		END	
DATE COLLECTED		TIME COLLECTED		NO OF CONTAINERS		LEVEL		END	
86-WPT-639	5/13/05	1335	11	2	24	X	X	CPT-68-21	11 12
86-WPT-640	1330	5	X	X	X	X	X	16 17	
86-WPT-641	1335	5	X	X	X	X	X	24 25	
86-WPT-642	1350	5	X	X	X	X	X	33 34	
86-WPT-643	1400	5	X	X	X	X	X	42 43	
86-WPT-644	1420	5	X	X	X	X	X	52 53	
86-WPT-645	1445	4	X	X	X	X	X	EQUIPMENT TAGS -	
LABORATORY INSTRUCTIONS/COMMENTS									
COMPOSITE DESCRIPTION									
24 hr TAT @ VOC ONLY									
SAMPLE CONDITION UPON RECEIPT FOR LABORATORY									
TEMPERATURE									
COOLER SEAL									
SAMPLE CONDITION: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN									
SAMPLING COMMENT:									
OP 8609.88									

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management

00497346-12

Data Validation Package  
for  
Moffett Air Field, WATS Building 88, CTO 86  
ARF 47346

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## Case Narrative

ARF: 47346

Project: 1990.086D WATS Bldg 88 Moffett Airfield

State Certification Number: CA1312

Results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

### Sample Receipt Information:

The sample group was received May 03, 2005, at 3.0°C. The samples were assigned Analytical Request Form (ARF) number 47346. The sample numbers and requested analyses were compared to the chains of custody. The soil TOC analysis was sub-contracted to Columbia Analytical Laboratory. No exception was noted.

Sample Table

CLIENT ID	APPL ID	Matrix	Date Sampled	Date Received
86-WOPT-631	AX19293	WATER	5/3/05	5/3/05
86-WOPT-632	AX19294	WATER	5/3/05	5/3/05
86-WOPT-633	AX19295	WATER	5/3/05	5/3/05
86-WOPT-634	AX19296	WATER	5/3/05	5/3/05
86-WOPT-635	AX19297	WATER	5/3/05	5/3/05
86-WOPT-636	AX19298	WATER	5/3/05	5/3/05
86-WOPT-637	AX19299	WATER	5/3/05	5/3/05
86-WOPT-638	AX19300	WATER	5/3/05	5/3/05
86-WOPT-639	AX19301	SOIL	5/3/05	5/3/05
86-WOPT-640	AX19302	SOIL	5/3/05	5/3/05
86-WOPT-641	AX19303	SOIL	5/3/05	5/3/05
86-WOPT-642	AX19304	SOIL	5/3/05	5/3/05
86-WOPT-643	AX19305	SOIL	5/3/05	5/3/05
86-WOPT-644	AX19306	SOIL	5/3/05	5/3/05
86-WOPT-645	AX19307	WATER	5/3/05	5/3/05

# **EPA Method 8260B and CLP Volatiles Volatile Organic Analysis**

## **Sample Preparation:**

The samples were purged according to EPA method 5030B, 5035, and CLP. All other holding times were met.

## **Sample Analysis Information:**

The samples were analyzed according to the method using a Hewlett Packard Gas Chromatograph with a mass spectrometer detector. The sample pH were taken after analysis. All samples had a pH of 2.

## **Quality Control/Assurance**

### **Calibrations:**

Initial and continuing calibrations were performed according to the method. For the continuing calibration verification performed on Chico file ID: 0503C02W.D, Acetone had a 40%D. For the continuing calibration verification performed on Neo file ID: 0505N01W.D, Acetone had a 32%D. All other calibration criteria were met.

### **Blanks:**

For the 050503AC method blank, Acetone was detected below the reporting limit but above the MDL at 17µg/kg. All associated samples containing Acetone were "B" flagged. For the 050503AN method blank Acetone and Methylene chloride were detected above the reporting limit at 19µg/L and 1.2µg/L. All corresponding samples were "B" flagged for Acetone and Methylene chloride. For the 050504AN method blank, Acetone was detected below the reporting limit but above the MDL at 4.9µg/L. For the 050505AN method blank Acetone was detected above the reporting limit at 16µg/L. No other target analyte was detected above the reporting limits in the method blanks.

### **Spikes:**

Laboratory Control Spikes (LCS) were used for quality assurance. A second-source standard was used for the LCS. All spike and second-source criteria were met. All recoveries were within acceptable limits.

Samples 86-WOPT-639 and 86-WOPT-637 were designated by the client for MS/MSD analysis. For the MS/MSD performed on sample 86-WOPT-639, 1,1-Dichloroethene, Benzene, Chlorobenzene, Toluene, and Trichloroethene were recovered below the lower control limits in the MS/MSD. For the MS/MSD performed on sample 86-WOPT-637, Trichloroethene recovered above the 125% upper control limit at 169% and 165%. All other recoveries met acceptance criteria.

### **Surrogates**

All surrogate recoveries were within control limits.

### **Tuning:**

The instrument was tuned using BFB. All method criteria were met.

### **Internal Standards**

The internal standard area counts were compared to the mid-point of the initial calibration according to method 8260. The internal standard area counts were compared to the continuing calibration according to CLP. All method criteria were met.

### **Summary:**

No additional problem was encountered.

## **EPA Methods 6010B Metals**

### **Digestion Information:**

The water was digested according to EPA methods 3010A. No exceptions were encountered. All holding times were met.

### **Analysis Information:**

#### **Samples:**

The sample was analyzed for dissolved metals according to EPA method 6010B using a Perkin Elmer Optima 4300DV.

#### **Calibrations:**

Calibrations were performed according to the methods for the initial calibration and the initial calibration verification. The initial calibration verification is prepared from a second source standard.

#### **Blanks:**

Calcium and Potassium were detected below the reporting limit but above the MDL in the 050510A method blank at 0.033mg/L and 0.11mg/L respectively. No other target metal was detected above the reporting limits in the method blank.

#### **Spikes:**

Laboratory Control Spikes (LCS/LCSD) were used for quality assurance. LCS recoveries were within acceptance limits.

Sample 86-WOPT-637 was designated by the client for MS/MSD analysis. For the MS/MSD, Calcium recovered below the 80% control limits at -40% and -104%, Iron recovered above the 120% lower control limit at 510% and 410%, Magnesium recovered below the 80% lower control limit at 48.8% and 47.2%, and Potassium recovered below the 80% lower control limit at 32.0% and 30.0%. All other recoveries met acceptance criteria.

### **Summary:**

No analytical exception is noted. All data are acceptable.

# **EPA Methods 300.0, 310.1 and 9060A**

## **Anions, Carbonates & Bi-carbonates and Total Organic Carbon**

### **Sample Preparation Information:**

A Dionex DX500 ion chromatograph was used for the EPA 300.0 analysis. The TOC was analyzed using a Shimadzu TOC-5050A instrument. The samples were screened down to the MDL.

### **Analysis Information:**

#### **Samples:**

The sample was analyzed according to the methods. A Dionex DX500 ion chromatograph was used for the EPA 300.0 analysis.

#### **Calibrations:**

Calibrations were performed according to the methods for the initial calibration and the initial calibration verification. The initial calibration verification is prepared from a second source standard.

#### **Blanks:**

No target analyte was detected above the reporting limits in the method blanks.

#### **Spikes:**

Laboratory Control Spikes (LCS/LCSD) and Sample Duplicates were used for quality assurance. All recoveries met acceptance criteria.

Sample 86-WOPT-637 was designated by the client for MS/MSD analysis. For the MS/MSD, Sulfate recovered below the 80% lower control limit at 75.3% and 74.7%. All other recoveries met acceptance criteria.

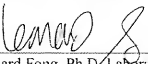
### **Summary:**

No analytical exception is noted.



## CERTIFICATION

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the hard copy has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

 5/25/05  
\_\_\_\_\_  
Leonard Fong, Ph.D., Laboratory Director / Date

# CLP Volatiles Water

Tetra Tech FW, Inc  
1046 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Brankowski

Project: 1990.086D WATS Bldg E8 Moffett Airfield

Sample ID: 86-WOPT-631

Sample Collection Date: 5/3/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47346

APPL ID: AX19293

QCG: SC42VT-050533AN-26423

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	5/4/05	5/4/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	5/4/05	5/4/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	0.5	0.21	ug/L	5/4/05	5/4/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	5/4/05	5/4/05
CLP VOL	1,1-Dichloroethane	Not detected	0.5	0.19	ug/L	5/4/05	5/4/05
CLP VOL	1,1-Dichloroethene	Not detected	0.5	0.30	ug/L	5/4/05	5/4/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	5/4/05	5/4/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	5/4/05	5/4/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	5/4/05	5/4/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	5/4/05	5/4/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	5/4/05	5/4/05
CLP VOL	Acetone	12 B	5	0.95	ug/L	5/4/05	5/4/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	5/4/05	5/4/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	5/4/05	5/4/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	5/4/05	5/4/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	5/4/05	5/4/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	5/4/05	5/4/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	5/4/05	5/4/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	5/4/05	5/4/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	5/4/05	5/4/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	5/4/05	5/4/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	5/4/05	5/4/05
CLP VOL	cis-1,2-Dichloroethene	Not detected	0.5	0.16	ug/L	5/4/05	5/4/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	5/4/05	5/4/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	5/4/05	5/4/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	5/4/05	5/4/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	5/4/05	5/4/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	5/4/05	5/4/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	5/4/05	5/4/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	5/4/05	5/4/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	5/4/05	5/4/05

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0503N14  
Instrument: Neo  
Sequence: N050503  
Dilution Factor: 1  
Initials: LF

Printed: 5/23/05 8:43:28 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lise Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-631

Sample Collection Date: 5/3/05

ARF: 47346

APPL ID: AX19293

QCG: SC42VT-050503AN-86423

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	Not detected	0.5	0.15	ug/L	5/4/05	5/4/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	5/4/05	5/4/05
CLP VOL	trans-1,2-Dichloroethene	Not detected	0.5	0.19	ug/L	5/4/05	5/4/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	5/4/05	5/4/05
CLP VOL	Trichloroethene	Not detected	0.5	0.16	ug/L	5/4/05	5/4/05
CLP VOL	Vinyl Chloride	Not detected	0.5	0.23	ug/L	5/4/05	5/4/05
CLP VOL	Surrogate Recovery (BFB)	85.4	75-125		%	5/4/05	5/4/05
CLP VOL	Surrogate Recovery (DCA)	89.3	62-139		%	5/4/05	5/4/05
CLP VOL	Surrogate Recovery (TOL)	89.0	75-125		%	5/4/05	5/4/05

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0503N14  
Instrument: Neo  
Sequence: N050503  
Dilution Factor: 1  
Initials: LF

Printed: 5/23/05 8:43:29 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski  
Project: 1990 086D WATS Bldg 88 Moffett Airfield

ARF: 47346

Sample ID: 86-WOPT-632

APPL ID: AX19294

Sample Collection Date: 5/3/05

QCG: SC42VT-050503AN-86423

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	0.26 J	0.5	0.14	ug/L	5/4/05	5/4/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	5/4/05	5/4/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	0.54	0.5	0.21	ug/L	5/4/05	5/4/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	5/4/05	5/4/05
CLP VOL	1,1-Dichloroethane	14	0.5	0.19	ug/L	5/4/05	5/4/05
CLP VOL	1,1-Dichloroethene	9.2	0.5	0.30	ug/L	5/4/05	5/4/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	5/4/05	5/4/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	5/4/05	5/4/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	5/4/05	5/4/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	5/4/05	5/4/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	5/4/05	5/4/05
CLP VOL	Acetone	14 B	5	0.95	ug/L	5/4/05	5/4/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	5/4/05	5/4/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	5/4/05	5/4/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	5/4/05	5/4/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	5/4/05	5/4/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	5/4/05	5/4/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	5/4/05	5/4/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	5/4/05	5/4/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	5/4/05	5/4/05
CLP VOL	Chloroform	0.16 J	0.5	0.16	ug/L	5/4/05	5/4/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	5/4/05	5/4/05
CLP VOL	cis-1,2-Dichloroethene	310 E	0.5	0.16	ug/L	5/4/05	5/4/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	5/4/05	5/4/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	5/4/05	5/4/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	5/4/05	5/4/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	5/4/05	5/4/05
CLP VOL	Methyl tert-Butyl Ether	0.58	0.5	0.19	ug/L	5/4/05	5/4/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	5/4/05	5/4/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	5/4/05	5/4/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	5/4/05	5/4/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0503N15  
Instrument: Neo  
Sequence: N050503  
Dilution Factor: 1  
Initials: LF

Printed: 5/23/05 8:43:29 PM

APPL-F1-SC-MCRES/MCPQL-REG MDLs

# CLP Volatiles Wafer

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-632

Sample Collection Date: 5/3/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47346

APPL ID: AX19294

QCG: SC42VT-050503AN-86423

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	480 E	0.5	0.15	ug/L	5/4/05	5/4/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	5/4/05	5/4/05
CLP VOL	trans-1,2-Dichloroethene	2.1	0.5	0.19	ug/L	5/4/05	5/4/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	5/4/05	5/4/05
CLP VOL	Trichloroethene	350 E	0.5	0.16	ug/L	5/4/05	5/4/05
CLP VOL	Vinyl Chloride	0.70	0.5	0.23	ug/L	5/4/05	5/4/05
CLP VOL	Surrogate Recovery (BFB)	86.9	75-125		%	5/4/05	5/4/05
CLP VOL	Surrogate Recovery (DCA)	87.4	62-139		%	5/4/05	5/4/05
CLP VOL	Surrogate Recovery (TOL)	83.2	75-125		%	5/4/05	5/4/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0503N15  
Instrument: Neo  
Sequence: N050503  
Dilution Factor: 1  
Initials: LF

Printed: 5/23/05 8:43:29 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1040 E Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

ARF: 47346

Sample ID: 86-WOPT-632

APPL ID: AX19294

Sample Collection Date: 5/3/05

QCG: SC42VD-050515AN-87255

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	210	25	8.00	ug/L	5/15/05	5/15/05
CLP VOL	Tetrachloroethene	220	25	7.50	ug/L	5/15/05	5/15/05
CLP VOL	Trichloroethene	180	25	8.00	ug/L	5/15/05	5/15/05
CLP VOL	Surrogate Recovery (BFB)	108	75-125		%	5/15/05	5/15/05
CLP VOL	Surrogate Recovery (DCA)	112	62-139		%	5/15/05	5/15/05
CLP VOL	Surrogate Recovery (TOL)	110	75-125		%	5/15/05	5/15/05

Run #: 0515N06  
Instrument: Neo  
Sequence: N050512  
Dilution Factor: 50  
Initials: LF

Printed: 5/23/05 8:43:29 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-633

Sample Collection Date: 5/3/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47346

APPL ID: AX19295

QC/G: SC42VT-050503AN-86423

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	5/4/05	5/4/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	5/4/05	5/4/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	0.5	0.21	ug/L	5/4/05	5/4/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	5/4/05	5/4/05
CLP VOL	1,1-Dichloroethane	Not detected	0.5	0.19	ug/L	5/4/05	5/4/05
CLP VOL	1,1-Dichloroethene	Not detected	0.5	0.30	ug/L	5/4/05	5/4/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	5/4/05	5/4/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	5/4/05	5/4/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	5/4/05	5/4/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	5/4/05	5/4/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	5/4/05	5/4/05
CLP VOL	Acetone	7.9 B	5	0.95	ug/L	5/4/05	5/4/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	5/4/05	5/4/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	5/4/05	5/4/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	5/4/05	5/4/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	5/4/05	5/4/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	5/4/05	5/4/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	5/4/05	5/4/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	5/4/05	5/4/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	5/4/05	5/4/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	5/4/05	5/4/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	5/4/05	5/4/05
CLP VOL	cis-1,2-Dichloroethene	0.29 J	0.5	0.16	ug/L	5/4/05	5/4/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	5/4/05	5/4/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	5/4/05	5/4/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	5/4/05	5/4/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	5/4/05	5/4/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	5/4/05	5/4/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	5/4/05	5/4/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	5/4/05	5/4/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	5/4/05	5/4/05

J = Estimated value, below quantitation limit.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0503N16  
Instrument: Neo  
Sequence: N050503  
Dilution Factor: 1  
Initials: LF

Printed: 5/23/05 8:43 29 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deers Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990 066D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-633

Sample Collection Date: 5/3/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47346

APPL ID: AX19295

QCG: SC42VT-050503AN-26423

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	0.65	0.5	0.15	ug/L	5/4/05	5/4/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	5/4/05	5/4/05
CLP VOL	trans-1,2-Dichloroethene	Not detected	0.5	0.19	ug/L	5/4/05	5/4/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	5/4/05	5/4/05
CLP VOL	Trichloroethene	0.30 J	0.5	0.16	ug/L	5/4/05	5/4/05
CLP VOL	Vinyl Chloride	Not detected	0.5	0.23	ug/L	5/4/05	5/4/05
CLP VOL	Surrogate Recovery (BFB)	86.1	75-125		%	5/4/05	5/4/05
CLP VOL	Surrogate Recovery (DCA)	90.0	62-139		%	5/4/05	5/4/05
CLP VOL	Surrogate Recovery (TOL)	81.7	75-125		%	5/4/05	5/4/05

J = Estimated value, below quantitation limit.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0503N16  
Instrument: Neo  
Sequence: N050503  
Dilution Factor: 1  
Initials: LF

Printed: 5/23/05 8:43:29 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg E8 Moffett Airfield

Sample ID: 86-WOPT-634

Sample Collection Date: 5/3/05

ARF: 47346

APPL ID: AX19296

QCG: SC42VT-050503AN-86423

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	5/4/05	5/4/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	5/4/05	5/4/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	0.75	0.5	0.21	ug/L	5/4/05	5/4/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	5/4/05	5/4/05
CLP VOL	1,1-Dichloroethane	6.7	0.5	0.19	ug/L	5/4/05	5/4/05
CLP VOL	1,1-Dichloroethene	14	0.5	0.30	ug/L	5/4/05	5/4/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	5/4/05	5/4/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	5/4/05	5/4/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	5/4/05	5/4/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	5/4/05	5/4/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	5/4/05	5/4/05
CLP VOL	Acetone	13 B	5	0.95	ug/L	5/4/05	5/4/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	5/4/05	5/4/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	5/4/05	5/4/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	5/4/05	5/4/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	5/4/05	5/4/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	5/4/05	5/4/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	5/4/05	5/4/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	5/4/05	5/4/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	5/4/05	5/4/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	5/4/05	5/4/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	5/4/05	5/4/05
CLP VOL	cis-1,2-Dichloroethene	1300 E	0.5	0.16	ug/L	5/4/05	5/4/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	5/4/05	5/4/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	5/4/05	5/4/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	5/4/05	5/4/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	5/4/05	5/4/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	5/4/05	5/4/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	5/4/05	5/4/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	5/4/05	5/4/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	5/4/05	5/4/05

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0503N17  
Instrument: Neo  
Sequence: N050503  
Dilution Factor: 1  
Initials: LF

Printed: 5/23/05 8:43:29 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47346

Sample ID: 86-WOPT-634

APPL ID: AX19296

Sample Collection Date: 5/3/05

QCG: SC42VT-050503AN-86423

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	87	0.5	0.15	ug/L	5/4/05	5/4/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	5/4/05	5/4/05
CLP VOL	trans-1,2-Dichloroethene	7.1	0.5	0.19	ug/L	5/4/05	5/4/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	5/4/05	5/4/05
CLP VOL	Trichloroethene	91	0.5	0.16	ug/L	5/4/05	5/4/05
CLP VOL	Vinyl Chloride	1.6	0.5	0.23	ug/L	5/4/05	5/4/05
CLP VOL	Surrogate Recovery (BFB)	87.4	75-125		%	5/4/05	5/4/05
CLP VOL	Surrogate Recovery (DCA)	101	62-139		%	5/4/05	5/4/05
CLP VOL	Surrogate Recovery (TOL)	86.3	75-125		%	5/4/05	5/4/05

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0503N17  
Instrument: Neo  
Sequence: N050503  
Dilution Factor: 1  
Initials: LF

Printed: 5/23/05 8:43:29 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.

1940 E. Deere Avenue, Suite 20

Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-634

Sample Collection Date: 5/3/05

APPL Inc.

4203 West Swift Avenue

Fresno, CA 93722

ARF: 47346

APPL ID: AX19296

QCG: SC42VD-050515AN-87255

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	1200	50	16.00	ug/L	5/15/05	5/15/05
CLP VOL	Surrogate Recovery (BFB)	106	75-125		%	5/15/05	5/15/05
CLP VOL	Surrogate Recovery (DCA)	101	62-139		%	5/15/05	5/15/05
CLP VOL	Surrogate Recovery (TOL)	108	75-125		%	5/15/05	5/15/05

Run #: 0515N07

Instrument: Neo

Sequence: N050512

Dilution Factor: 100

Initials: LF

Printed: 5/23/05 8 43:29 PM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Blc'g 88 Moffett Airfield

Sample ID: 86-WOPT-635

Sample Collection Date: 5/3/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47346

APPL ID: AX19297

CCG: SC42VT-050503AN-66423

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	5/4/05	5/4/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	5/4/05	5/4/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	0.59	0.5	0.21	ug/L	5/4/05	5/4/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	5/4/05	5/4/05
CLP VOL	1,1-Dichloroethane	6.0	0.5	0.19	ug/L	5/4/05	5/4/05
CLP VOL	1,1-Dichloroethene	11	0.5	0.30	ug/L	5/4/05	5/4/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	5/4/05	5/4/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	5/4/05	5/4/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	5/4/05	5/4/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	5/4/05	5/4/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	5/4/05	5/4/05
CLP VOL	Acetone	9.7 B	5	0.95	ug/L	5/4/05	5/4/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	5/4/05	5/4/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	5/4/05	5/4/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	5/4/05	5/4/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	5/4/05	5/4/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	5/4/05	5/4/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	5/4/05	5/4/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	5/4/05	5/4/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	5/4/05	5/4/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	5/4/05	5/4/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	5/4/05	5/4/05
CLP VOL	cis-1,2-Dichloroethene	1200 E	0.5	0.16	ug/L	5/4/05	5/4/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	5/4/05	5/4/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	5/4/05	5/4/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	5/4/05	5/4/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	5/4/05	5/4/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	5/4/05	5/4/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	5/4/05	5/4/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	5/4/05	5/4/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	5/4/05	5/4/05

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0503N18  
Instrument: Neo  
Sequence: N050503  
Dilution Factor: 1  
Initials: LF

Printed: 5/24/05 12:35 57 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 88-WOPT-635

Sample Collection Date: 5/3/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47346

APPL ID: AX19297

QCG: \$C42VT-050503AN-86423

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	82	0.5	0.15	ug/L	5/4/05	5/4/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	5/4/05	5/4/05
CLP VOL	trans-1,2-Dichloroethene	6.0	0.5	0.19	ug/L	5/4/05	5/4/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	5/4/05	5/4/05
CLP VOL	Trichloroethene	77	0.5	0.16	ug/L	5/4/05	5/4/05
CLP VOL	Vinyl Chloride	1.3	0.5	0.23	ug/L	5/4/05	5/4/05
CLP VOL	Surrogate Recovery (BFB)	90.8	75-125		%	5/4/05	5/4/05
CLP VOL	Surrogate Recovery (DCA)	87.3	62-139		%	5/4/05	5/4/05
CLP VOL	Surrogate Recovery (TOL)	84.1	75-125		%	5/4/05	5/4/05

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0503N18  
Instrument: Neo  
Sequence: N050503  
Dilution Factor: 1  
Initials: LF

Printed: 5/24/05 12:37:04 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.065D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-635

Sample Collection Date: 5/3/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47346

APPL ID: AX19297

QCG: SC42VD-050515AN-87255

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	1300	50	16.00	ug/L	5/15/05	5/15/05
CLP VOL	Surrogate Recovery (BFB)	106	75-125		%	5/15/05	5/15/05
CLP VOL	Surrogate Recovery (DCA)	109	62-139		%	5/15/05	5/15/05
CLP VOL	Surrogate Recovery (TOL)	108	75-125		%	5/15/05	5/15/05

Run #: 0515N08  
Instrument: Neo  
Sequence: N050512  
Dilution Factor: 100  
Initials: LF

Printed: 5/23/05 8:43:29 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 85-WOPT-636

Sample Collection Date: 5/3/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47346

APPL ID: AX19298

QCG: C\$42VT-050504AN-86472

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	0.39 J	0.5	0.14	ug/L	5/5/05	5/5/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	5/5/05	5/5/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	31	0.5	0.21	ug/L	5/5/05	5/5/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	5/5/05	5/5/05
CLP VOL	1,1-Dichloroethane	14	0.5	0.19	ug/L	5/5/05	5/5/05
CLP VOL	1,1-Dichloroethene	20	0.5	0.30	ug/L	5/5/05	5/5/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	5/5/05	5/5/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	5/5/05	5/5/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	5/5/05	5/5/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	5/5/05	5/5/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	5/5/05	5/5/05
CLP VOL	Acetone	6.8 B	5	0.95	ug/L	5/5/05	5/5/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	5/5/05	5/5/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	5/5/05	5/5/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	5/5/05	5/5/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	5/5/05	5/5/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	5/5/05	5/5/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	5/5/05	5/5/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	5/5/05	5/5/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	5/5/05	5/5/05
CLP VOL	Chloroform	0.24 J	0.5	0.16	ug/L	5/5/05	5/5/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	5/5/05	5/5/05
CLP VOL	cis-1,2-Dichloroethene	140 E	0.5	0.16	ug/L	5/5/05	5/5/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	5/5/05	5/5/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	5/5/05	5/5/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	5/5/05	5/5/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	5/5/05	5/5/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	5/5/05	5/5/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	5/5/05	5/5/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	5/5/05	5/5/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	5/5/05	5/5/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0504N40  
Instrument: Neo  
Sequence: N050503  
Dilution Factor: 1  
Initials: LF

Printed: 5/23/05 8:43:29 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1930 086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-636

Sample Collection Date: 5/3/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47346

APPL ID: AX19298

QCG: SC42VT-050504AN-86472

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	1100 E	0.5	0.15	ug/L	5/5/05	5/5/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	5/5/05	5/5/05
CLP VOL	trans-1,2-Dichloroethene	0.36 J	0.5	0.19	ug/L	5/5/05	5/5/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	5/5/05	5/5/05
CLP VOL	Trichloroethene	240 E	0.5	0.16	ug/L	5/5/05	5/5/05
CLP VOL	Vinyl Chloride	0.58	0.5	0.23	ug/L	5/5/05	5/5/05
CLP VOL	Surrogate Recovery (BFB)	104	75-125		%	5/5/05	5/5/05
CLP VOL	Surrogate Recovery (DCA)	106	62-139		%	5/5/05	5/5/05
CLP VOL	Surrogate Recovery (TOL)	102	75-125		%	5/5/05	5/5/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0504N40  
Instrument: Neo  
Sequence: N050503  
Dilution Factor: 1  
Initials: LF

Printed: 5/23/05 8:43:29 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



# CLP Volatiles Water

Tetra Tech FW, Inc.  
1540 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield  
Sample ID: 86-WOPT-636  
Sample Collection Date: 5/3/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47346  
APPL ID: AX19298  
QCG: SC42VD-050515AN-87255

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	57	50	16.00	ug/L	5/15/05	5/15/05
CLP VOL	Tetrachloroethene	290	50	15.00	ug/L	5/15/05	5/15/05
CLP VOL	Trichloroethene	62	50	16.00	ug/L	5/15/05	5/15/05
CLP VOL	Surrogate Recovery (BFB)	107	75-125		%	5/15/05	5/15/05
CLP VOL	Surrogate Recovery (DCA)	99.8	62-139		%	5/15/05	5/15/05
CLP VOL	Surrogate Recovery (TOL)	102	75-125		%	5/15/05	5/15/05

Run #: 0515N09  
Instrument: Neo  
Sequence: N050512  
Dilution Factor: 100  
Initials: LF

Printed 5/24/05 12:42:10 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47346

Sample ID: 86-WOPT-637

APPL ID: AX19299

Sample Collection Date: 5/3/05

QCG: SC42VT-050505AN-86471

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	1.0	0.5	0.14	ug/L	5/5/05	5/5/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	5/5/05	5/5/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	38	0.5	0.21	ug/L	5/5/05	5/5/05
CLP VOL	1,1,2-Trichloroethane	0.22 J	0.5	0.2	ug/L	5/5/05	5/5/05
CLP VOL	1,1-Dichloroethane	11	0.5	0.19	ug/L	5/5/05	5/5/05
CLP VOL	1,1-Dichloroethene	29	0.5	0.30	ug/L	5/5/05	5/5/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	5/5/05	5/5/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	5/5/05	5/5/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	5/5/05	5/5/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	5/5/05	5/5/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	5/5/05	5/5/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	5/5/05	5/5/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	5/5/05	5/5/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	5/5/05	5/5/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	5/5/05	5/5/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	5/5/05	5/5/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	5/5/05	5/5/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	5/5/05	5/5/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	5/5/05	5/5/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	5/5/05	5/5/05
CLP VOL	Chloroform	0.33 J	0.5	0.16	ug/L	5/5/05	5/5/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	5/5/05	5/5/05
CLP VOL	cis-1,2-Dichloroethene	160 E	0.5	0.16	ug/L	5/5/05	5/5/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	5/5/05	5/5/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	5/5/05	5/5/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	5/5/05	5/5/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	5/5/05	5/5/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	5/5/05	5/5/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	5/5/05	5/5/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	5/5/05	5/5/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	5/5/05	5/5/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0505N05  
Instrument: Neo  
Sequence: N050503  
Dilution Factor: 1  
Initials: LF

Printed: 5/23/05 8:43:29 PM  
APPL-F1-SC-MCRes/MCPOL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bierkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-637

Sample Collection Date: 5/3/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47346

APPL ID: AX19299

OCG: SC42VT-050505AN-86471

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	270 E	0.5	0.15	ug/L	5/5/05	5/5/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	5/5/05	5/5/05
CLP VOL	trans-1,2-Dichloroethene	0.54	0.5	0.19	ug/L	5/5/05	5/5/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	5/5/05	5/5/05
CLP VOL	Trichloroethene	930 E	0.5	0.16	ug/L	5/5/05	5/5/05
CLP VOL	Vinyl Chloride	0.44 J	0.5	0.23	ug/L	5/5/05	5/5/05
CLP VOL	Surrogate Recovery (BFB)	104	75-125		%	5/5/05	5/5/05
CLP VOL	Surrogate Recovery (DCA)	124	62-139		%	5/5/05	5/5/05
CLP VOL	Surrogate Recovery (TOL)	105	75-125		%	5/5/05	5/5/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0505N05  
Instrument: Neo  
Sequence: N050503  
Dilution Factor: 1  
Initials: LF

Printed: 5/23/05 8:43:30 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.066D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-637

Sample Collection Date: 5/3/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47346

APPL ID: AX19299

QCG: SC42VD-050515AN-87255

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	67	50	16.00	ug/L	5/16/05	5/16/05
CLP VOL	Tetrachloroethene	94	50	15.00	ug/L	5/16/05	5/16/05
CLP VOL	Trichloroethene	410	50	16.00	ug/L	5/16/05	5/16/05
CLP VOL	Surrogate Recovery (BFB)	105	75-125		%	5/16/05	5/16/05
CLP VOL	Surrogate Recovery (DCA)	105	62-139		%	5/16/05	5/16/05
CLP VOL	Surrogate Recovery (TOL)	104	75-125		%	5/16/05	5/16/05

Run #: 0515N10  
Instrument: Neo  
Sequence: N050512  
Dilution Factor: 100  
Initials: LF

Printed: 5/24/05 12:38:01 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Blenkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-838

Sample Collection Date: 5/3/05

ARF: 47346

APPL ID: AX19300

QCQ: SC42VT-050505AN-86471

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	0.95	0.5	0.14	ug/L	5/5/05	5/5/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	5/5/05	5/5/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	48	0.5	0.21	ug/L	5/5/05	5/5/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	5/5/05	5/5/05
CLP VOL	1,1-Dichloroethane	6.4	0.5	0.19	ug/L	5/5/05	5/5/05
CLP VOL	1,1-Dichloroethene	31	0.5	0.30	ug/L	5/5/05	5/5/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	5/5/05	5/5/05
CLP VOL	1,2-Dichloropropene	Not detected	0.5	0.17	ug/L	5/5/05	5/5/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	5/5/05	5/5/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	5/5/05	5/5/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	5/5/05	5/5/05
CLP VOL	Acetone	15 B	5	0.95	ug/L	5/5/05	5/5/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	5/5/05	5/5/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	5/5/05	5/5/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	5/5/05	5/5/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	5/5/05	5/5/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	5/5/05	5/5/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	5/5/05	5/5/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	5/5/05	5/5/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	5/5/05	5/5/05
CLP VOL	Chloroform	0.38 J	0.5	0.16	ug/L	5/5/05	5/5/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	5/5/05	5/5/05
CLP VOL	cis-1,2-Dichloroethane	50	0.5	0.16	ug/L	5/5/05	5/5/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	5/5/05	5/5/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	5/5/05	5/5/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	5/5/05	5/5/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	5/5/05	5/5/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	5/5/05	5/5/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	5/5/05	5/5/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	5/5/05	5/5/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	5/5/05	5/5/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0505N07  
Instrument: Neo  
Sequence: N050503  
Dilution Factor: 1  
Initials: LF

Printed 5/24/05 12:36:19 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 28 Moffett Airfield

Sample ID: 86-WOPT-638

Sample Collection Date: 5/3/05

ARF: 47346

APPL ID: AX19300

QCG: SC42VT-050505AN-86471

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	140 E	0.5	0.15	ug/L	5/5/05	5/5/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	5/5/05	5/5/05
CLP VOL	trans-1,2-Dichloroethene	Not detected	0.5	0.19	ug/L	5/5/05	5/5/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	5/5/05	5/5/05
CLP VOL	Trichloroethene	880 E	0.5	0.16	ug/L	5/5/05	5/5/05
CLP VOL	Vinyl Chloride	Not detected	0.5	0.23	ug/L	5/5/05	5/5/05
CLP VOL	Surrogate Recovery (BFB)	105	75-125		%	5/5/05	5/5/05
CLP VOL	Surrogate Recovery (DCA)	104	62-139		%	5/5/05	5/5/05
CLP VOL	Surrogate Recovery (TOL)	104	75-125		%	5/5/05	5/5/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.  
B = The analyte was found in a method blank, as well as in the sample.

Run #: 0505N07  
Instrument: Neo  
Sequence: N050503  
Dilution Factor: 1  
Initials: LF

Printed 5/24/05 12:37:02 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-638

Sample Collection Date: 5/3/05

ARF: 47346

APPL ID: AX19300

QCG: SC42VD-050515AN-87255

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	38 J	50	15.00	ug/L	5/16/05	5/16/05
CLP VOL	Trichloroethene	300	50	16.00	ug/L	5/16/05	5/16/05
CLP VOL	Surrogate Recovery (BFB)	111	75-125		%	5/16/05	5/16/05
CLP VOL	Surrogate Recovery (DCA)	111	62-139		%	5/16/05	5/16/05
CLP VOL	Surrogate Recovery (TOL)	109	75-125		%	5/16/05	5/16/05

J = Estimated value, below quantitation limit.

Run #: 0515N11  
Instrument: Neo  
Sequence: N050512  
Dilution Factor: 100  
Initials: LF

Printed: 5/25/05 1:13:28 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech, FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

ARF: 47346

Sample ID: 86-WOPT-639

APPL ID: AX19301

Sample Collection Date: 5/3/05

QCG: S86TTS-050503AC-86424

Method	Analyte	Result	FQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 19.1 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	1.0	ug/Kg	5/4/05	5/4/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.5	ug/Kg	5/4/05	5/4/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.59	ug/Kg	5/4/05	5/4/05
EPA 8260B	1,1-Dichloroethane	Not detected	6	1.4	ug/Kg	5/4/05	5/4/05
EPA 8260B	1,1-Dichloroethene	Not detected	6	0.98	ug/Kg	5/4/05	5/4/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.89	ug/Kg	5/4/05	5/4/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.77	ug/Kg	5/4/05	5/4/05
EPA 8260B	2-Butanone	Not detected	62	0.88	ug/Kg	5/4/05	5/4/05
EPA 8260B	2-Hexanone	Not detected	62	0.20	ug/Kg	5/4/05	5/4/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	62	1.1	ug/Kg	5/4/05	5/4/05
EPA 8260B	Acetone	10 B J	120	3.5	ug/Kg	5/4/05	5/4/05
EPA 8260B	Benzene	Not detected	6	0.78	ug/Kg	5/4/05	5/4/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.85	ug/Kg	5/4/05	5/4/05
EPA 8260B	Bromoform	Not detected	6	0.99	ug/Kg	5/4/05	5/4/05
EPA 8260B	Bromomethane	Not detected	12	2.0	ug/Kg	5/4/05	5/4/05
EPA 8260B	Carbon disulfide	Not detected	6	1.3	ug/Kg	5/4/05	5/4/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.99	ug/Kg	5/4/05	5/4/05
EPA 8260B	Chlorobenzene	Not detected	6	0.61	ug/Kg	5/4/05	5/4/05
EPA 8260B	Chloroethane	Not detected	6	1.9	ug/Kg	5/4/05	5/4/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	5/4/05	5/4/05
EPA 8260B	Chloromethane	Not detected	6	2.2	ug/Kg	5/4/05	5/4/05
EPA 8260B	cis-1,2-Dichloroethene	12	6	1.3	ug/Kg	5/4/05	5/4/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.58	ug/Kg	5/4/05	5/4/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.0	ug/Kg	5/4/05	5/4/05
EPA 8260B	Ethylbenzene	Not detected	6	0.79	ug/Kg	5/4/05	5/4/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	5/4/05	5/4/05
EPA 8260B	Methylene chloride	Not detected	62	5.7	ug/Kg	5/4/05	5/4/05
EPA 8260B	Styrene	Not detected	6	0.85	ug/Kg	5/4/05	5/4/05
EPA 8260B	Tetrachloroethene	2.5 J	6	0.67	ug/Kg	5/4/05	5/4/05
EPA 8260B	Toluene	Not detected	6	0.80	ug/Kg	5/4/05	5/4/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.7	ug/Kg	5/4/05	5/4/05

J = Estimated value, below quantitation limit.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0503C13  
Instrument: Chico  
Sequence: C050501  
Dilution Factor: 1  
Initials: LF

Printed: 5/23/05 8:43:30 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990 086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-639

Sample Collection Date: 5/3/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47346

APPL ID: AX19301

QCG: S86TTS-050503AC-86424

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.53	ug/Kg	5/4/05	5/4/05
EPA 8260B	Trichloroethene	5.5 J	6	0.88	ug/Kg	5/4/05	5/4/05
EPA 8260B	Vinyl Acetate	Not detected	62	1.2	ug/Kg	5/4/05	5/4/05
EPA 8260B	Vinyl chloride	Not detected	6	2.1	ug/Kg	5/4/05	5/4/05
EPA 8260B	Xylenes	Not detected	19	0.84	ug/Kg	5/4/05	5/4/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	115	52-149		%	5/4/05	5/4/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	91.2	65-135		%	5/4/05	5/4/05
EPA 8260B	Surrogate recovery: Toluene-d8	87.8	65-135		%	5/4/05	5/4/05

J = Estimated value, below quantitation limit.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0503C13  
Instrument: Chico  
Sequence: C050501  
Dilution Factor: 1  
Initials: LF

Printed: 5/23/05 8:43 30 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

ARF: 47346

Sample ID: 86-WOPT-640

APPL ID: AX19302

Sample Collection Date: 5/3/05

OCG: \$86TTS-050503AC-86424

Method	Analyte	Result	PQL	kiDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 21.5 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	1.0	ug/Kg	5/3/05	5/3/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.6	ug/Kg	5/3/05	5/3/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.61	ug/Kg	5/3/05	5/3/05
EPA 8260B	1,1-Dichloroethane	Not detected	6	1.4	ug/Kg	5/3/05	5/3/05
EPA 8260B	1,1-Dichloroethane	Not detected	6	1.0	ug/Kg	5/3/05	5/3/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.92	ug/Kg	5/3/05	5/3/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.79	ug/Kg	5/3/05	5/3/05
EPA 8260B	2-Butanone	Not detected	64	0.90	ug/Kg	5/3/05	5/3/05
EPA 8260B	2-Hexanone	Not detected	64	0.20	ug/Kg	5/3/05	5/3/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	64	1.2	ug/Kg	5/3/05	5/3/05
EPA 8260B	Acetone	14 B J	130	3.6	ug/Kg	5/3/05	5/3/05
EPA 8260B	Benzene	Not detected	6	0.80	ug/Kg	5/3/05	5/3/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.88	ug/Kg	5/3/05	5/3/05
EPA 8260B	Bromoform	Not detected	6	1.0	ug/Kg	5/3/05	5/3/05
EPA 8260B	Bromomethane	Not detected	13	2.0	ug/Kg	5/3/05	5/3/05
EPA 8260B	Carbon disulfide	Not detected	6	1.4	ug/Kg	5/3/05	5/3/05
EPA 8260B	Carbon tetrachloride	Not detected	6	1.0	ug/Kg	5/3/05	5/3/05
EPA 8260B	Chlorobenzene	Not detected	6	0.62	ug/Kg	5/3/05	5/3/05
EPA 8260B	Chloroethane	Not detected	6	2.0	ug/Kg	5/3/05	5/3/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	5/3/05	5/3/05
EPA 8260B	Chloromethane	Not detected	6	2.3	ug/Kg	5/3/05	5/3/05
EPA 8260B	cis-1,2-Dichloroethene	3.0 J	6	1.4	ug/Kg	5/3/05	5/3/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.60	ug/Kg	5/3/05	5/3/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.1	ug/Kg	5/3/05	5/3/05
EPA 8260B	Ethylbenzene	Not detected	6	0.82	ug/Kg	5/3/05	5/3/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	5/3/05	5/3/05
EPA 8260B	Methylene chloride	Not detected	64	5.8	ug/Kg	5/3/05	5/3/05
EPA 8260B	Styrene	Not detected	6	0.88	ug/Kg	5/3/05	5/3/05
EPA 8260B	Tetrachloroethene	6.2	6	0.69	ug/Kg	5/3/05	5/3/05
EPA 8260B	Toluene	Not detected	6	0.83	ug/Kg	5/3/05	5/3/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.7	ug/Kg	5/3/05	5/3/05

J = Estimated value, below quantitation limit.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0503C08  
Instrument: Chico  
Sequence: C050501  
Dilution Factor: 1  
Initials: LF

Printed: 5/23/05 8:43:30 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990 C&D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-640

Sample Collection Date: 5/3/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47346

APPL ID: AX19302

QCG: S86TTS-050503AC-86424

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.55	ug/Kg	5/3/05	5/3/05
EPA 8260B	Trichloroethene	3.3 J	6	0.90	ug/Kg	5/3/05	5/3/05
EPA 8260B	Vinyl Acetate	Not detected	64	1.3	ug/Kg	5/3/05	5/3/05
EPA 8260B	Vinyl chloride	Not detected	6	2.1	ug/Kg	5/3/05	5/3/05
EPA 8260B	Xylenes	Not detected	19	0.87	ug/Kg	5/3/05	5/3/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	112	52-149		%	5/3/05	5/3/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	88.6	65-135		%	5/3/05	5/3/05
EPA 8260B	Surrogate recovery: Toluene-d8	93.1	65-135		%	5/3/05	5/3/05

J = Estimated value, below quantitation limit.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0503C08  
Instrument: Chico  
Sequence: C050501  
Dilution Factor: 1  
Initials: LF

Printed: 5/23/05 8:43:30 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

ARF: 47346

Sample ID: 86-WOPT-641

APPL ID: AX19303

Sample Collection Date: 5/3/05

QCG: S86TTS-050503AC-86424

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 26.3 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	7	1.1	ug/Kg	5/3/05	5/3/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	7	1.7	ug/Kg	5/3/05	5/3/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	7	0.65	ug/Kg	5/3/05	5/3/05
EPA 8260B	1,1-Dichloroethane	Not detected	7	1.5	ug/Kg	5/3/05	5/3/05
EPA 8260B	1,1-Dichloroethene	1.4 J	7	1.1	ug/Kg	5/3/05	5/3/05
EPA 8260B	1,2-Dichloroethane	Not detected	7	0.98	ug/Kg	5/3/05	5/3/05
EPA 8260B	1,2-Dichloropropane	Not detected	7	0.84	ug/Kg	5/3/05	5/3/05
EPA 8260B	2-Butanone	Not detected	68	0.96	ug/Kg	5/3/05	5/3/05
EPA 8260B	2-Hexanone	Not detected	68	0.22	ug/Kg	5/3/05	5/3/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	68	1.3	ug/Kg	5/3/05	5/3/05
EPA 8260B	Acetone	20 B J	140	3.8	ug/Kg	5/3/05	5/3/05
EPA 8260B	Benzene	Not detected	7	0.85	ug/Kg	5/3/05	5/3/05
EPA 8260B	Bromodichloromethane	Not detected	7	0.94	ug/Kg	5/3/05	5/3/05
EPA 8260B	Bromoform	Not detected	7	1.1	ug/Kg	5/3/05	5/3/05
EPA 8260B	Bromomethane	Not detected	14	2.2	ug/Kg	5/3/05	5/3/05
EPA 8260B	Carbon disulfide	Not detected	7	1.5	ug/Kg	5/3/05	5/3/05
EPA 8260B	Carbon tetrachloride	Not detected	7	1.1	ug/Kg	5/3/05	5/3/05
EPA 8260B	Chlorobenzene	Not detected	7	0.66	ug/Kg	5/3/05	5/3/05
EPA 8260B	Chloroethane	Not detected	7	2.1	ug/Kg	5/3/05	5/3/05
EPA 8260B	Chloroform	Not detected	7	1.9	ug/Kg	5/3/05	5/3/05
EPA 8260B	Chloromethane	Not detected	7	2.5	ug/Kg	5/3/05	5/3/05
EPA 8260B	cis-1,2-Dichloroethene	330	7	1.4	ug/Kg	5/3/05	5/3/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	7	0.64	ug/Kg	5/3/05	5/3/05
EPA 8260B	Dibromochloromethane	Not detected	7	1.1	ug/Kg	5/3/05	5/3/05
EPA 8260B	Ethylbenzene	Not detected	7	0.87	ug/Kg	5/3/05	5/3/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	7	1.2	ug/Kg	5/3/05	5/3/05
EPA 8260B	Methylene chloride	Not detected	68	6.2	ug/Kg	5/3/05	5/3/05
EPA 8260B	Styrene	Not detected	7	0.94	ug/Kg	5/3/05	5/3/05
EPA 8260B	Tetrachloroethene	1.5 J	7	0.73	ug/Kg	5/3/05	5/3/05
EPA 8260B	Toluene	Not detected	7	0.88	ug/Kg	5/3/05	5/3/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	7	1.8	ug/Kg	5/3/05	5/3/05

J = Estimated value, below quantitation limit.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0503C09  
Instrument: Chico  
Sequence: C050501  
Dilution Factor: 1  
Initials: LF

Printed: 5/23/05 8:43:30 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1540 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Blenkowski

Project: 1590 086D WATS Bldg 88 Moffett Airfield

Sample ID: 36-WOPT-641

Sample Collection Date: 5/3/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47346

APPL ID: AX19303

QCG: \$86TTS-050503AC-86424

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	7	0.58	ug/Kg	5/3/05	5/3/05
EPA 8260B	Trichloroethene	2.7 J	7	0.96	ug/Kg	5/3/05	5/3/05
EPA 8260B	Vinyl Acetate	Not detected	68	1.4	ug/Kg	5/3/05	5/3/05
EPA 8260B	Vinyl chloride	Not detected	7	2.3	ug/Kg	5/3/05	5/3/05
EPA 8260B	Xylenes	Not detected	20	0.92	ug/Kg	5/3/05	5/3/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	112	52-149		%	5/3/05	5/3/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	91.2	65-135		%	5/3/05	5/3/05
EPA 8260B	Surrogate recovery: Toluene-d8	94.8	65-135		%	5/3/05	5/3/05

J = Estimated value, below quantitation limit.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0503C09  
Instrument: Chico  
Sequence: C050501  
Dilution Factor: 1  
Initials: LF

Printed: 5/23/05 8:43:30 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Blenkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

ARF: 47346

Sample ID: 86-WOPT-642

APPL ID: AX15304

Sample Collection Date: 5/3/05

QCG: S86TTS-050503AC-86424

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 25.4 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	7	1.1	ug/Kg	5/3/05	5/3/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	7	1.7	ug/Kg	5/3/05	5/3/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	7	0.64	ug/Kg	5/3/05	5/3/05
EPA 8260B	1,1-Dichloroethane	1.5 J	7	1.5	ug/Kg	5/3/05	5/3/05
EPA 8260B	1,1-Dichloroethene	2.4 J	7	1.1	ug/Kg	5/3/05	5/3/05
EPA 8260B	1,2-Dichloroethane	Not detected	7	0.87	ug/Kg	5/3/05	5/3/05
EPA 8260B	1,2-Dichloropropane	Not detected	7	0.83	ug/Kg	5/3/05	5/3/05
EPA 8260B	2-Butanone	Not detected	67	0.95	ug/Kg	5/3/05	5/3/05
EPA 8260B	2-Hexanone	Not detected	67	0.21	ug/Kg	5/3/05	5/3/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	67	1.2	ug/Kg	5/3/05	5/3/05
EPA 8260B	Acetone	11 B J	130	3.8	ug/Kg	5/3/05	5/3/05
EPA 8260B	Benzene	Not detected	7	0.84	ug/Kg	5/3/05	5/3/05
EPA 8260B	Bromodichloromethane	Not detected	7	0.92	ug/Kg	5/3/05	5/3/05
EPA 8260B	Bromoform	Not detected	7	1.1	ug/Kg	5/3/05	5/3/05
EPA 8260B	Bromomethane	Not detected	13	2.1	ug/Kg	5/3/05	5/3/05
EPA 8260B	Carbon disulfide	Not detected	7	1.4	ug/Kg	5/3/05	5/3/05
EPA 8260B	Carbon tetrachloride	Not detected	7	1.1	ug/Kg	5/3/05	5/3/05
EPA 8260B	Chlorobenzene	Not detected	7	0.66	ug/Kg	5/3/05	5/3/05
EPA 8260B	Chloroethane	Not detected	7	2.1	ug/Kg	5/3/05	5/3/05
EPA 8260B	Chloroform	Not detected	7	1.9	ug/Kg	5/3/05	5/3/05
EPA 8260B	Chloromethane	Not detected	7	2.4	ug/Kg	5/3/05	5/3/05
EPA 8260B	cis-1,2-Dichloroethene	18	7	1.4	ug/Kg	5/3/05	5/3/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	7	0.63	ug/Kg	5/3/05	5/3/05
EPA 8260B	Dibromochloromethane	Not detected	7	1.1	ug/Kg	5/3/05	5/3/05
EPA 8260B	Ethylbenzene	Not detected	7	0.86	ug/Kg	5/3/05	5/3/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	7	1.2	ug/Kg	5/3/05	5/3/05
EPA 8260B	Methylene chloride	Not detected	67	6.1	ug/Kg	5/3/05	5/3/05
EPA 8260B	Styrene	Not detected	7	0.92	ug/Kg	5/3/05	5/3/05
EPA 8260B	Tetrachloroethene	150	7	0.72	ug/Kg	5/3/05	5/3/05
EPA 8260B	Toluene	Not detected	7	0.87	ug/Kg	5/3/05	5/3/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	7	1.8	ug/Kg	5/3/05	5/3/05

J = Estimated value, below quantitation limit.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0503C10  
Instrument: Chico  
Sequence: C050501  
Dilution Factor: 1  
Initials: LF

Printed: 5/23/05 8:43:30 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990 066D WATS Bldg 88 Moffett Airfield

ARF: 47346

Sample ID: 86-WOPT-642

APPL ID: AX19304

Sample Collection Date: 5/3/05

QCG: \$86TTS-050503AC-86424

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	7	0.58	ug/Kg	5/3/05	5/3/05
EPA 8260B	Trichloroethene	28	7	0.95	ug/Kg	5/3/05	5/3/05
EPA 8260B	Vinyl Acetate	Not detected	67	1.3	ug/Kg	5/3/05	5/3/05
EPA 8260B	Vinyl chloride	Not detected	7	2.2	ug/Kg	5/3/05	5/3/05
EPA 8260B	Xylenes	Not detected	20	0.91	ug/Kg	5/3/05	5/3/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	110	52-149		%	5/3/05	5/3/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	91.4	65-135		%	5/3/05	5/3/05
EPA 8260B	Surrogate recovery: Toluene-d8	91.3	65-135		%	5/3/05	5/3/05

J = Estimated value, below quantitation limit.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0503C10  
Instrument: Chico  
Sequence: C050501  
Dilution Factor: 1  
Initials: LF

Printed: 5/23/05 8:43:30 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990 026D WATS Bldg 88 Moffett Airfield

ARF: 47346

Sample ID: 86-WOPT-643

APPL ID: AX19305

Sample Collection Date: 5/3/05

OCG: \$86TTS-050503AC-86424

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 20.4 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	1.0	ug/Kg	5/3/05	5/3/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.6	ug/Kg	5/3/05	5/3/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.60	ug/Kg	5/3/05	5/3/05
EPA 8260B	1,1-Dichloroethane	Not detected	6	1.4	ug/Kg	5/3/05	5/3/05
FPA 8260B	1,1-Dichloroethane	2.2 J	6	0.99	ug/Kg	5/3/05	5/3/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.90	ug/Kg	5/3/05	5/3/05
FPA 8260B	1,2-Dichloropropane	Not detected	6	0.78	ug/Kg	5/3/05	5/3/05
EPA 8260B	2-Butanone	Not detected	63	0.89	ug/Kg	5/3/05	5/3/05
EPA 8260B	2-Hexanone	Not detected	63	0.20	ug/Kg	5/3/05	5/3/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	63	1.2	ug/Kg	5/3/05	5/3/05
EPA 8260B	Acetone	11 B J	130	3.5	ug/Kg	5/3/05	5/3/05
EPA 8260B	Benzene	Not detected	6	0.79	ug/Kg	5/3/05	5/3/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.87	ug/Kg	5/3/05	5/3/05
EPA 8260B	Bromoform	Not detected	6	1.0	ug/Kg	5/3/05	5/3/05
EPA 8260B	Bromomethane	Not detected	13	2.0	ug/Kg	5/3/05	5/3/05
FPA 8260B	Carbon disulfide	Not detected	6	1.4	ug/Kg	5/3/05	5/3/05
EPA 8260B	Carbon tetrachloride	Not detected	6	1.0	ug/Kg	5/3/05	5/3/05
EPA 8260B	Chlorobenzene	Not detected	6	0.62	ug/Kg	5/3/05	5/3/05
EPA 8260B	Chloroethane	Not detected	6	2.0	ug/Kg	5/3/05	5/3/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	5/3/05	5/3/05
EPA 8260B	Chloromethane	Not detected	6	2.3	ug/Kg	5/3/05	5/3/05
EPA 8260B	cis-1,2-Dichloroethene	3.0 J	6	1.3	ug/Kg	5/3/05	5/3/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.59	ug/Kg	5/3/05	5/3/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.1	ug/Kg	5/3/05	5/3/05
EPA 8260B	Ethylbenzene	Not detected	6	0.80	ug/Kg	5/3/05	5/3/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	5/3/05	5/3/05
EPA 8260B	Methylene chloride	Not detected	63	5.8	ug/Kg	5/3/05	5/3/05
EPA 8260B	Styrene	Not detected	6	0.87	ug/Kg	5/3/05	5/3/05
EPA 8260B	Tetrachloroethene	11	6	0.68	ug/Kg	5/3/05	5/3/05
FPA 8260B	Toluene	Not detected	6	0.82	ug/Kg	5/3/05	5/3/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.7	ug/Kg	5/3/05	5/3/05

J = Estimated value, below quantitation limit.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0503C11  
Instrument: Chico  
Sequence: C050501  
Dilution Factor: 1  
Initials: LF

Printed: 5/23/05 8:43:30 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990 086D WATS Bldg 88 Moffett Airfield

Sample ID: 66-WOPT-643

Sample Collection Date: 5/3/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47346

APPL ID: AX19305

QCG: \$86TTS-050503AC-86424

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.54	ug/Kg	5/3/05	5/3/05
EPA 8260B	Trichloroethene	33	6	0.89	ug/Kg	5/3/05	5/3/05
EPA 8260B	Vinyl Acetate	Not detected	63	1.3	ug/Kg	5/3/05	5/3/05
EPA 8260B	Vinyl chloride	Not detected	6	2.1	ug/Kg	5/3/05	5/3/05
EPA 8260B	Xylenes	Not detected	19	0.85	ug/Kg	5/3/05	5/3/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	114	52-149		%	5/3/05	5/3/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	88.2	65-135		%	5/3/05	5/3/05
EPA 8260B	Surrogate recovery: Toluene-d8	89.6	65-135		%	5/3/05	5/3/05

J = Estimated value, below quantitation limit.  
B = The analyte was found in a method blank, as well as in the sample.

Run #: 0503C11  
Instrument: Chico  
Sequence: C050501  
Dilution Factor: 1  
Initials: LF

Printed: 5/23/05 8:43:30 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1540 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-644

Sample Collection Date: 5/3/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47346

APPL ID: AX19306

CCG: S86TTS-050503AC-86424

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 22.0 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	1.0	ug/Kg	5/3/05	5/3/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.6	ug/Kg	5/3/05	5/3/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.62	ug/Kg	5/3/05	5/3/05
EPA 8260B	1,1-Dichloroethane	Not detected	6	1.4	ug/Kg	5/3/05	5/3/05
EPA 8260B	1,1-Dichloroethene	Not detected	6	1.0	ug/Kg	5/3/05	5/3/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.92	ug/Kg	5/3/05	5/3/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.79	ug/Kg	5/3/05	5/3/05
EPA 8260B	2-Butanone	Not detected	64	0.91	ug/Kg	5/3/05	5/3/05
EPA 8260B	2-Hexanone	Not detected	64	0.21	ug/Kg	5/3/05	5/3/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	64	1.2	ug/Kg	5/3/05	5/3/05
EPA 8260B	Acetone	10 B J	130	3.6	ug/Kg	5/3/05	5/3/05
EPA 8260B	Benzene	Not detected	6	0.81	ug/Kg	5/3/05	5/3/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.88	ug/Kg	5/3/05	5/3/05
EPA 8260B	Bromoform	Not detected	6	1.0	ug/Kg	5/3/05	5/3/05
EPA 8260B	Bromomethane	Not detected	13	2.0	ug/Kg	5/3/05	5/3/05
EPA 8260B	Carbon disulfide	Not detected	6	1.4	ug/Kg	5/3/05	5/3/05
EPA 8260B	Carbon tetrachloride	Not detected	6	1.0	ug/Kg	5/3/05	5/3/05
EPA 8260B	Chlorobenzene	Not detected	6	0.63	ug/Kg	5/3/05	5/3/05
EPA 8260B	Chloroethane	Not detected	6	2.0	ug/Kg	5/3/05	5/3/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	5/3/05	5/3/05
EPA 8260B	Chloromethane	Not detected	6	2.3	ug/Kg	5/3/05	5/3/05
EPA 8260B	cis-1,2-Dichloroethane	Not detected	6	1.4	ug/Kg	5/3/05	5/3/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.60	ug/Kg	5/3/05	5/3/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.1	ug/Kg	5/3/05	5/3/05
EPA 8260B	Ethylbenzene	Not detected	6	0.82	ug/Kg	5/3/05	5/3/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	5/3/05	5/3/05
EPA 8260B	Methylene chloride	Not detected	64	5.9	ug/Kg	5/3/05	5/3/05
EPA 8260B	Styrene	Not detected	6	0.88	ug/Kg	5/3/05	5/3/05
EPA 8260B	Tetrachloroethene	1.7 J	6	0.69	ug/Kg	5/3/05	5/3/05
EPA 8260B	Toluene	Not detected	6	0.83	ug/Kg	5/3/05	5/3/05
EPA 8260B	trans-1,2-Dichloroethane	Not detected	6	1.7	ug/Kg	5/3/05	5/3/05

J = Estimated value, below quantitation limit.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0503C12  
Instrument: Chico  
Sequence: C050501  
Dilution Factor: 1  
Initials: LF

Printed: 5/23/05 8:43:30 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Glienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: **86-WOPT-644**

Sample Collection Date: 5/3/05

ARF: 47346

APPL ID: **AX19306**

QCG: S86TTS-050503AC-86424

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.55	ug/Kg	5/3/05	5/3/05
EPA 8260B	Trichloroethene	4.7 J	6	0.91	ug/Kg	5/3/05	5/3/05
EPA 8260B	Vinyl Acetate	Not detected	64	1.3	ug/Kg	5/3/05	5/3/05
EPA 8260B	Vinyl chloride	Not detected	6	2.1	ug/Kg	5/3/05	5/3/05
EPA 8260B	Xylenes	Not detected	19	0.87	ug/Kg	5/3/05	5/3/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	113	52-149		%	5/3/05	5/3/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	92.0	65-135		%	5/3/05	5/3/05
EPA 8260B	Surrogate recovery: Toluene-d8	88.4	65-135		%	5/3/05	5/3/05

J = Estimated value, below quantitation limit.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0503C12  
Instrument: Chico  
Sequence: C050501  
Dilution Factor: 1  
Initials: LF

Printed: 5/23/05 8:43:30 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1340 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

ARF: 47346

Sample ID: 86-WOPT-645

APPL ID: AX19307

Sample Collection Date: 5/3/05

QCG: S86TTW-050517AM-8725

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	5/17/05	5/17/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	5/17/05	5/17/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	5/17/05	5/17/05
EPA 8260B	1,1-Dichloroethane	Not detected	0.5	0.19	ug/L	5/17/05	5/17/05
EPA 8260B	1,1-Dichloroethene	Not detected	0.5	0.30	ug/L	5/17/05	5/17/05
EPA 8260B	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	5/17/05	5/17/05
EPA 8260B	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	5/17/05	5/17/05
EPA 8260B	2-Butanone	Not detected	5	0.6	ug/L	5/17/05	5/17/05
EPA 8260B	2-Hexanone	Not detected	5	0.92	ug/L	5/17/05	5/17/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	5/17/05	5/17/05
EPA 8260B	Acetone	Not detected	5	0.95	ug/L	5/17/05	5/17/05
EPA 8260B	Benzene	Not detected	0.5	0.16	ug/L	5/17/05	5/17/05
EPA 8260B	Bromodichloromethane	Not detected	0.5	0.14	ug/L	5/17/05	5/17/05
EPA 8260B	Bromoform	Not detected	0.5	0.14	ug/L	5/17/05	5/17/05
EPA 8260B	Bromomethane	Not detected	1	0.24	ug/L	5/17/05	5/17/05
EPA 8260B	Carbon disulfide	Not detected	0.5	0.2	ug/L	5/17/05	5/17/05
EPA 8260B	Carbon tetrachloride	Not detected	0.5	0.10	ug/L	5/17/05	5/17/05
EPA 8260B	Chlorobenzene	Not detected	0.5	0.21	ug/L	5/17/05	5/17/05
EPA 8260B	Chloroethane	Not detected	0.5	0.21	ug/L	5/17/05	5/17/05
EPA 8260B	Chloroform	0.19 J	0.5	0.16	ug/L	5/17/05	5/17/05
EPA 8260B	Chloromethane	Not detected	0.5	0.31	ug/L	5/17/05	5/17/05
EPA 8260B	cis-1,2-Dichloroethene	Not detected	0.5	0.16	ug/L	5/17/05	5/17/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	5/17/05	5/17/05
EPA 8260B	Dibromochloromethane	Not detected	0.5	0.19	ug/L	5/17/05	5/17/05
EPA 8260B	Ethylbenzene	Not detected	0.5	0.23	ug/L	5/17/05	5/17/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	5/17/05	5/17/05
EPA 8260B	Methylene chloride	Not detected	5	0.35	ug/L	5/17/05	5/17/05
EPA 8260B	Styrene	Not detected	0.5	0.25	ug/L	5/17/05	5/17/05
EPA 8260B	Tetrachloroethene	Not detected	0.5	0.15	ug/L	5/17/05	5/17/05
EPA 8260B	Toluene	Not detected	0.5	0.17	ug/L	5/17/05	5/17/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	0.5	0.19	ug/L	5/17/05	5/17/05

J = Estimated value, below quantitation limit.

Run #: 0517M14  
Instrument: Max  
Sequence: M050517  
Dilution Factor: 1  
Initials: LF

Printed: 5/23/05 8:43:30 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

Sample ID: **86-WOPT-645**

Sample Collection Date: 5/3/05

AFPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47346

APPL ID: **AX19307**

QCG: S86TTW-050517AM-8725

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	5/17/05	5/17/05
EPA 8260B	Trichloroethene	Not detected	0.5	0.16	ug/L	5/17/05	5/17/05
EPA 8260B	Vinyl Acetate	Not detected	5	0.31	ug/L	5/17/05	5/17/05
EPA 8260B	Vinyl chloride	Not detected	0.5	0.23	ug/L	5/17/05	5/17/05
EPA 8260B	Xylenes	Not detected	1.5	0.19	ug/L	5/17/05	5/17/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	97.8	62-139		%	5/17/05	5/17/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	90.0	75-125		%	5/17/05	5/17/05
EPA 8260B	Surrogate recovery: Toluene-d8	98.5	75-125		%	5/17/05	5/17/05

J = Estimated value, below quantitation limit.

Run #: 0517M14  
Instrument: Max  
Sequence: M050517  
Dilution Factor: 1  
Initials: LF

Printed: 5/23/05 8:43:30 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47346

Sample ID: 86-WOPT-632

APPL ID: AX19294

Sample Collection Date: 5/3/05

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	316	25	0.14	mg/L	5/10/05	5/20/05
6010B	Calcium (Ca)	281 E	5	0.0272	mg/L	5/10/05	5/20/05
6010B	Iron (Fe)	13.6	0.1	0.0258	mg/L	5/10/05	5/20/05
6010B	Magnesium (Mg)	98.3	5	0.0129	mg/L	5/10/05	5/20/05
6010B	Potassium (K)	7.2	5	0.0995	mg/L	5/10/05	5/20/05
6010B	Sodium (Na)	36.6	5	0.1111	mg/L	5/10/05	5/20/05

E = The reported value exceeds linear range.

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47346

Sample ID: 86-WOPT-633

APPL ID: AX19295

Sample Collection Date: 5/3/05

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	370	50	0.27	mg/L	5/10/05	5/20/05
6010B	Calcium (Ca)	305 E	5	0.0272	mg/L	5/10/05	5/20/05
6010B	Iron (Fe)	235	1	0.26	mg/L	5/10/05	5/20/05
6010B	Iron (Fe)	184 E	0.1	0.0258	mg/L	5/10/05	5/20/05
6010B	Magnesium (Mg)	85.6	5	0.0129	mg/L	5/10/05	5/20/05
6010B	Potassium (K)	19.4	5	0.0995	mg/L	5/10/05	5/20/05
6010B	Sodium (Na)	38.9	5	0.1111	mg/L	5/10/05	5/20/05

E = The reported value exceeds linear range.

Printed: 5/23/05 5:42:32 PM

PL-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: **86-WOPT-634**

Sample Collection Date: 5/3/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47346

APPL ID: **AX19296**

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	229	25	0.14	mg/L	5/10/05	5/20/05
6010B	Calcium (Ca)	197 E	5	0.0272	mg/L	5/10/05	5/20/05
6010B	Iron (Fe)	193	0.5	0.13	mg/L	5/10/05	5/20/05
6010B	Iron (Fe)	164 E	0.1	0.0258	mg/L	5/10/05	5/20/05
6010B	Magnesium (Mg)	74.2	5	0.0129	mg/L	5/10/05	5/20/05
6010B	Potassium (K)	11.8	5	0.0995	mg/L	5/10/05	5/20/05
6010B	Sodium (Na)	40.1	5	0.1111	mg/L	5/10/05	5/20/05

E = The reported value exceeds linear range.

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2L-F1-SC-MCRes/MCPQL-REG MDLs



## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-635

Sample Collection Date: 5/3/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47346

APPL ID: AX19297

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	208	25	0.14	mg/L	5/10/05	5/20/05
6010B	Calcium (Ca)	184 E	5	0.0272	mg/L	5/10/05	5/20/05
6010B	Iron (Fe)	171	0.5	0.13	mg/L	5/10/05	5/20/05
6010B	Iron (Fe)	145 E	0.1	0.0258	mg/L	5/10/05	5/20/05
6010B	Magnesium (Mg)	68.3	5	0.0129	mg/L	5/10/05	5/20/05
6010B	Potassium (K)	12.6	5	0.0995	mg/L	5/10/05	5/20/05
6010B	Sodium (Na)	39.2	5	0.1111	mg/L	5/10/05	5/20/05

E = The reported value exceeds linear range.

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3L-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski  
Project: 1S90.086D WATS Bldg 88 Moffett Airfield  
Sample ID: **86-WOPT-636**  
Sample Collection Date: 5/3/05

ARF: 47346  
APPL ID: **AX19298**

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	1260	100	0.54	mg/L	5/10/05	5/20/05
6010B	Calcium (Ca)	1120 E	5	0.0272	mg/L	5/10/05	5/20/05
6010B	Iron (Fe)	6.2	0.1	0.0258	mg/L	5/10/05	5/20/05
6010B	Magnesium (Mg)	115	10	0.026	mg/L	5/10/05	5/20/05
6010B	Magnesium (Mg)	106 E	5	0.0129	mg/L	5/10/05	5/20/05
6010B	Potassium (K)	5.8	5	0.0995	mg/L	5/10/05	5/20/05
6010B	Sodium (Na)	35.0	5	0.1111	mg/L	5/10/05	5/20/05

E = The reported value exceeds linear range.

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2L-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-637

Sample Collection Date: 5/3/05

ARF: 47346

APPL ID: AX19299

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	323	25	0.14	mg/L	5/10/05	5/20/05
6010B	Calcium (Ca)	312 E	5	0.0272	mg/L	5/10/05	5/20/05
6010B	Iron (Fe)	20.5	0.1	0.0258	mg/L	5/10/05	5/20/05
6010B	Magnesium (Mg)	79.7	5	0.0129	mg/L	5/10/05	5/20/05
6010B	Potassium (K)	13.4	5	0.0995	mg/L	5/10/05	5/20/05
6010B	Sodium (Na)	38.7	5	0.1111	mg/L	5/10/05	5/20/05

E = The reported value exceeds linear range.

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PL-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-638

Sample Collection Date: 5/3/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47346

APPL ID: AX19300

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	317	25	0.14	mg/L	5/10/05	5/20/05
6010B	Calcium (Ca)	283 E	5	0.0272	mg/L	5/10/05	5/20/05
6010B	Iron (Fe)	13.4	0.1	0.0258	mg/L	5/10/05	5/20/05
6010B	Magnesium (Mg)	58.1	5	0.0129	mg/L	5/10/05	5/20/05
6010B	Potassium (K)	8.1	5	0.0995	mg/L	5/10/05	5/20/05
6010B	Sodium (Na)	33.2	5	0.1111	mg/L	5/10/05	5/20/05

E = The reported value exceeds linear range.

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2L-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.08SD WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-632

Sample Collection Date: 5/3/05

APPL ID: AX19294

ARF: 47346

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	32400	1000	80	ug/L	5/4/05	5/4/05
EPA 300.0	Nitrate	4030	200	15	ug/L	5/4/05	5/4/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	5/4/05	5/4/05
EPA 300.0	Sulfate	546000 E	1000	90	ug/L	5/4/05	5/4/05
EPA 300.0	Sulfate	468000	5000	450	ug/L	5/4/05	5/4/05
EPA 310.1	Bicarbonate	324	5	0.787	mg/L	5/13/05	5/13/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	5/13/05	5/13/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

# Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deera Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WCPT-633

Sample Collection Date: 5/3/05

APPL ID: AX19295

ARF: 47346

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	31300	1000	80	ug/L	5/4/05	5/4/05
EPA 300.0	Nitrate	14800	200	15	ug/L	5/4/05	5/4/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	5/4/05	5/4/05
EPA 300.0	Sulfate	189000 E	1000	90	ug/L	5/4/05	5/4/05
EPA 300.0	Sulfate	159000	5000	450	ug/L	5/4/05	5/4/05
EPA 310.1	Bicarbonate	274	5	0.787	mg/L	5/13/05	5/13/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	5/13/05	5/13/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 88-WOPT-634

Sample Collection Date: 5/3/05

APPL ID: AX19296

ARF: 47346

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	38300	1000	80	ug/L	5/4/05	5/4/05
EPA 300.0	Nitrate	1110	200	15	ug/L	5/4/05	5/4/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	5/4/05	5/4/05
EPA 300.0	Sulfate	285000 E	1000	90	ug/L	5/4/05	5/4/05
EPA 300.0	Sulfate	239000	5000	450	ug/L	5/4/05	5/4/05
EPA 310.1	Bicarbonate	251	5	0.787	mg/L	5/13/05	5/13/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	5/13/05	5/13/05

E = The reported value exceeds linear range.

*Amended Page*

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-635

Sample Collection Date: 5/3/05

APPL ID: AX19297

ARF: 47346

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	38000	1000	80	ug/L	5/4/05	5/4/05
EPA 300.0	Nitrate	2840	200	15	ug/L	5/4/05	5/4/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	5/4/05	5/4/05
EPA 300.0	Sulfate	283000 E	1000	90	ug/L	5/4/05	5/4/05
EPA 300.0	Sulfate	236000	5000	450	ug/L	5/4/05	5/4/05
EPA 310.1	Bicarbonate	249	5	0.787	mg/L	5/13/05	5/13/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	5/13/05	5/13/05

E = The reported value exceeds linear range.

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4PPL-F1-SC-MCRes/MCPQL-REG MDLs



## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 66-WOPT-636

Sample Collection Date: 5/3/05

APPL ID: AX19298

ARF: 47346

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	35400	1000	80	ug/L	5/4/05	5/4/05
EPA 300.0	Nitrate	2950	200	15	ug/L	5/4/05	5/4/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	5/4/05	5/4/05
EPA 300.0	Sulfate	266000 E	1000	90	ug/L	5/4/05	5/4/05
EPA 300.0	Sulfate	222000	5000	450	ug/L	5/4/05	5/4/05
EPA 310.1	Bicarbonate	259	5	0.787	mg/L	5/13/05	5/13/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	5/13/05	5/13/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.08CD WATS Bldg 68 Moffett Airfield

Sample ID: 86-WOPT-637

Sample Collection Date: 5/3/05

APPL ID: AX19299

ARF: 47346

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	37200	1000	80	ug/L	5/4/05	5/4/05
EPA 300.0	Nitrate	4470	200	15	ug/L	5/4/05	5/4/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	5/4/05	5/4/05
EPA 300.0	Sulfate	321000 E	1000	90	ug/L	5/4/05	5/4/05
EPA 300.0	Sulfate	258000	5000	450	ug/L	5/4/05	5/4/05
EPA 310.1	Bicarbonate	277	5	0.787	mg/L	5/13/05	5/13/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	5/13/05	5/13/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-638

Sample Collection Date: 5/3/05

APPL ID: AX19300

ARF: 47346

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	35900	1000	80	ug/L	5/4/05	5/4/05
EPA 300.0	Nitrate	3900	200	15	ug/L	5/4/05	5/4/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	5/4/05	5/4/05
EPA 300.0	Sulfate	278000 E	1000	90	ug/L	5/4/05	5/4/05
EPA 300.0	Sulfate	229000	5000	450	ug/L	5/4/05	5/4/05
EPA 310.1	Bicarbonate	245	5	0.787	mg/L	5/13/05	5/13/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	5/13/05	5/13/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.085D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-639**

Sample Collection Date: 5/3/05

**APPL ID: AX19301**

ARF: 47346

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 19.1 Percent Moisture.)							
CLP MOIST	Moisture	19.1	2.0		%	5/4/05	5/4/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-640**

Sample Collection Date: 5/3/05

**APPL ID: AX19302**

ARF: 47346

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 21.5 Percent Moisture.)							
CLP MOIST	Moisture	21.5	2.0		%	5/4/05	5/4/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-641

Sample Collection Date: 5/3/05

APPL ID: AX19303

ARF: 47346

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 26.3 Percent Moisture.)							
CLP MOIST	Moisture	26.3	2.0		%	5/4/05	5/4/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOFT-642**

Sample Collection Date: 5/3/05

**APPL ID: AX19304**

**ARF: 47346**

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 25.4 Percent Moisture.)							
CLP MOIST	Moisture	25.4	2.0		%	5/4/05	5/4/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

# Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-643**

Sample Collection Date: 5/3/05

**APPL ID: AX19305**

ARF: 47346

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 20.4 Percent Moisture.)							
CLP MOIST	Moisture	20.4	2.0		%	5/4/05	5/4/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs



## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-644**

Sample Collection Date: 5/3/05

**APPL ID: AX19306**

ARF: 47346

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 22.0 Percent Moisture.)							
CLP MOIST	Moisture	22.0	2.0		%	5/4/05	5/4/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 20  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Eldg 88 Moffett Airfield

Sample ID: 86-WOPT-645

Sample Collection Date: 5/3/05

APPL ID: AX19307

ARF: 47346

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
SW846 9060	Total Organic Carbon	0.66	0.5	0.129	mg/L	5/23/05	5/23/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs



May 19, 2005

Service Request No: K2503253

Robert Wise  
APPL, Inc.  
4203 W. Swift Avenue  
Fresno, CA 93722

**RE: 47346**

Dear Robert:

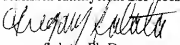
Enclosed are the results of the sample(s) submitted to our laboratory on May 5, 2005. For your reference, these analyses have been assigned our service request number K2503253.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3376.

Respectfully submitted,

**Columbia Analytical Services, Inc.**

  
Gregory Salata, Ph.D.  
Project Chemist

GS/jeb

Page 1 of 15

COLUMBIA ANALYTICAL SERVICES, INC.

Client: Agriculture & Priority Pollutants Labs  
Project: 47346  
Sample Matrix: Soil

Service Request No.: K2503253  
Date Received: 05/05/05

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier III validation deliverables including summary forms and all of the associated raw data for each of the analyses. When appropriate to the method, method blank results have been reported with each analytical test.

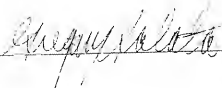
Sample Receipt

Six soil samples were received for analysis at Columbia Analytical Services on 05/05/05. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

General Chemistry Parameters

No anomalies associated with the analysis of these samples were observed.

Approved by



Date

5/19/05

70015

# COLUMBIA ANALYTICAL SERVICES, INC.

## Analytical Report

Client : Agriculture & Priority Pollutants Labs  
 Project Name : NA  
 Project Number : 47346  
 Sample Matrix : SOIL

Service Request : K2591253  
 Date Collected : 05/03/05  
 Date Received : 05/05/05

### Carbon, Total Organic

Analysis Method : Walkley-Black  
 Test Notes :

Units : mg/Kg (ppm)  
 Basis : Dry

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
86-WOPT-639	K2503253-001	2000	900	1	05/16/05	2050	
86-WOPT-640	K2503253-002	2000	900	1	05/16/05	4030	
86-WOPT-641	K2503253-003	2000	900	1	05/16/05	3750	
86-WOPT-642	K2503253-004	2000	900	1	05/16/05	1920	J
86-WOPT-643	K2503253-005	2000	900	1	05/16/05	1950	J
86-WOPT-644	K2503253-006	2000	900	1	05/16/05	2580	
Method Blank	K2503253-MB	2000	900	1	05/16/05	ND	

00010

**Laboratory Data Consultants, Inc.**  
**Data Validation Report**

**Project/Site Name:** Moffett Air Field, Building 88, CTO 86  
**Collection Date:** May 3, 2005  
**LDC Report Date:** June 2, 2005  
**Matrix:** Soil/Water  
**Parameters:** Volatiles  
**Validation Level:** EPA Level III & IV  
**Laboratory:** APPL, Inc.

**Sample Delivery Group (SDG):** 47346

**Sample Identification**

86-WOPT-639  
86-WOPT-640\*\*  
86-WOPT-641  
86-WOPT-642  
86-WOPT-643  
86-WOPT-644\*\*  
86-WOPT-645  
86-WOPT-639MS  
86-WOPT-639MSD

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 8 soil samples and one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 15.0% for each individual compound and less than or equal to 30.0% for calibration check compounds (CCCs).

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination ( $r^2$ ) was greater than or equal to 0.990 .

Average relative response factors (RRF) for all system performance check compounds (SPCCs) were within method and validation criteria.

## IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 20.0% for all compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
5/3/05	Bromomethane	22	All soil samples in SDG 47346	J (all detects)	A
	Acetone	40		UJ (all non-detects) J (all detects) UJ (all non-detects)	

All of the continuing calibration RRF values for all system performance check compounds (SPCCs) were within method and validation criteria.



## V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Analysis Date	Compound TIC (RT in minutes)	Concentration	Associated Samples
050503S	5/3/05	Acetone	17 ug/Kg	All soil samples in SDG 47346

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
86-WOPT-639	Acetone	10 ug/Kg	120U ug/Kg
86-WOPT-640**	Acetone	14 ug/Kg	130U ug/Kg
86-WOPT-641	Acetone	20 ug/Kg	140U ug/Kg
86-WOPT-642	Acetone	11 ug/Kg	130U ug/Kg
86-WOPT-643	Acetone	11 ug/Kg	130U ug/Kg
86-WOPT-644**	Acetone	10 ug/Kg	130U ug/Kg

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Compound	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
86-WOPT-639MS/MSD (86-WOPT-639)	1,1-Dichloroethene	46.7 (65-135)	36.9 (65-135)	-	J (all detects)	A
	Benzene	41.4 (65-135)	34.4 (65-135)	-	UJ (all non-detects)	
	Chlorobenzene	29.7 (65-135)	23.5 (65-135)	-		
	Toluene	37.8 (64-135)	28.1 (64-135)	-		
	Trichloroethene	28.9 (61-135)	26.1 (61-135)	-		

### VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

### IX. Regional Quality Assurance and Quality Control

Not applicable.

### X. Internal Standards

All internal standard areas and retention times were within QC limits.

### XI. Target Compound Identifications

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

### XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

### XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

### XIV. System Performance

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

### XV. Overall Assessment

Data flags are summarized at the end of this report if data has been qualified.

## **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

## **XVII. Field Blanks**

Sample 86-WOPT-645 was identified as an equipment rinsate. No volatile contaminants were found in this blank with the following exceptions:

Equipment Rinsate ID	Compound	Concentration (ug/L)
86-WOPT-645	Chloroform	0.19

**Moffett Air Field, Building 88, CTO 86**  
**Volatiles - Data Qualification Summary - SDG 47346**

SDG	Sample	Compound	Flag	A or P	Reason
47346	86-WOPT-639 86-WOPT-640** 86-WOPT-641 86-WOPT-642 86-WOPT-643 86-WOPT-644**	Bromomethane  Acetone	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
47346	86-WOPT-639	1,1-Dichloroethene Benzene Chlorobenzene Toluene Trichloroethene	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicates (%R)

**Moffett Air Field, Building 88, CTO 86**  
**Volatiles - Laboratory Blank Data Qualification Summary - SDG 47346**

SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P
47346	86-WOPT-639	Acetone	120U ug/Kg	A
47346	86-WOPT-640**	Acetone	130U ug/Kg	A
47346	86-WOPT-641	Acetone	140U ug/Kg	A
47346	86-WOPT-642	Acetone	130U ug/Kg	A
47346	86-WOPT-643	Acetone	130U ug/Kg	A
47346	86-WOPT-644**	Acetone	130U ug/Kg	A

**Laboratory Data Consultants, Inc.**  
**Data Validation Report**

**Project/Site Name:** Moffett Air Field, Building 88, CTO 86  
**Collection Date:** May 3, 2005  
**LDC Report Date:** June 2, 2005  
**Matrix:** Water  
**Parameters:** Volatiles  
**Validation Level:** EPA Level III & IV  
**Laboratory:** APPL, Inc.

**Sample Delivery Group (SDG):** 47346

**Sample Identification**

86-WOPT-631  
86-WOPT-632\*\*  
86-WOPT-632DL\*\*  
86-WOPT-633  
86-WOPT-634  
86-WOPT-634DL  
86-WOPT-635  
86-WOPT-635DL  
86-WOPT-636\*\*  
86-WOPT-636DL\*\*  
86-WOPT-637  
86-WOPT-637DL  
86-WOPT-638  
86-WOPT-638DL  
86-WOPT-637MS  
86-WOPT-637MSD

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 16 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Contract Laboratory Program Statement of Work (SOW) OLM04.2 for Volatiles.

This review follows USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999); the following subsections correlate to the above guidelines.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 30.0% for all compounds with the following exceptions:

Date	Compound	%RSD	Associated Samples	Flag	A or P
5/12/05	Acetone	64	86-WOPT-631 86-WOPT-632** 86-WOPT-633 86-WOPT-634 86-WOPT-635 86-WOPT-636** 86-WOPT-637 86-WOPT-638 050504W 050505W1 050505W2	J (all detects) UJ (all non-detects)	A

Average relative response factors (RRF) for all volatile target compounds and system monitoring compounds were within validation criteria.

## IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 25.0% with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
5/5/05	Acetone	32	86-WOPT-637 86-WOPT-638 050505W2	J (all detects) UJ (all non-detects)	A

All of the continuing calibration RRF values were within validation criteria.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Analysis Date	Compound TIC (RT in minutes)	Concentration	Associated Samples
050504W	5/4/05	Acetone Methylene chloride	19 ug/L 1.2 ug/L	86-WOPT-631 86-WOPT-632** 86-WOPT-633 86-WOPT-634 86-WOPT-635
050505W1	5/5/05	Acetone	4.9 ug/L	86-WOPT-636**
050505W2	5/5/05	Acetone	16 ug/L	86-WOPT-637 86-WOPT-638

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
86-WOPT-631	Acetone	12 ug/L	12U ug/L
86-WOPT-632**	Acetone	14 ug/L	14U ug/L
86-WOPT-633	Acetone	7.9 ug/L	7.9U ug/L
86-WOPT-634	Acetone	13 ug/L	13U ug/L
86-WOPT-635	Acetone	9.7 ug/L	9.7U ug/L
86-WOPT-636**	Acetone	6.8 ug/L	6.8U ug/L



Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
86-WOPT-638	Acetone	15 ug/L	15U ug/L

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the SOW. All surrogate recoveries (%R) were within QC limits.

## VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Compound	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
86-WOPT-637MS/MSD (86-WOPT-637DL)	Trichloroethene	169 (71-125)	165 (71-125)	-	J (all detects)	A

## VIII. Laboratory Control Samples (LCS)

Although laboratory control samples were not required by the method, laboratory control samples were reported by the laboratory. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## IX. Regional Quality Assurance and Quality Control

Not applicable.

## X. Internal Standards

All internal standard areas and retention times were within QC limits.

## XI. Target Compound Identifications

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
86-WOPT-632** 86-WOPT-636** 86-WOPT-637	cis-1,2-Dichloroethene Tetrachloroethene Trichloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects) J (all detects)	A
86-WOPT-634 86-WOPT-635	cis-1,2-Dichloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	A
86-WOPT-638	Tetrachloroethene Trichloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects)	A

Raw data were not evaluated for the samples reviewed by Level III criteria.

### XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

### XIV. System Performance

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

### XV. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### XVI. Field Duplicates

Samples 86-WOPT-634 and 86-WOPT-635 and samples 86-WOPT-634DL and 86-WOPT-635DL were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	86-WOPT-634	86-WOPT-635	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.76	0.59	25
1,1-Dichloroethane	6.7	6.0	11
1,1-Dichloroethene	14	11	24
Acetone	13	9.7	29

Compound	Concentration (ug/L)		RPD
	86-WOPT-634	86-WOPT-635	
cis-1,2-Dichloroethene	1300	1200	8
Tetrachloroethene	87	82	6
trans-1,2-Dichloroethene	7.1	6.0	17
Trichloroethene	91	77	17
Vinyl chloride	1.6	1.3	21

Compound	Concentration (ug/L)		RPD
	86-WOPT-634DL	86-WOPT-635DL	
cis-1,2-Dichloroethene	1200	1300	0

## XVII. Field Blanks

Sample 86-WOPT-631 was identified as a trip blank. No volatile contaminants were found in this blank with the following exceptions:

Trip Blank ID	Compound	Concentration (ug/L)
86-WOPT-631	Acetone	12

**Moffett Air Field, Building 88, CTO 86**  
**Volatiles - Data Qualification Summary - SDG 47346**

SDG	Sample	Compound	Flag	A or P	Reason
47346	86-WOPT-631 86-WOPT-632** 86-WOPT-633 86-WOPT-634 86-WOPT-635 86-WOPT-636** 86-WOPT-637 86-WOPT-638	Acetone	J (all detects) UJ (all non-detects)	A	Initial calibration (%RSD)
47346	86-WOPT-637 86-WOPT-638	Acetone	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
47346	86-WOPT-637DL	Trichloroethene	J (all detects)	A	Matrix spike/Matrix spike duplicates (%R)
47346	86-WOPT-632** 86-WOPT-636** 86-WOPT-637	cis-1,2-Dichloroethene Tetrachloroethene Trichloroethene	J (all detects) J (all detects) J (all detects)	A	Compound quantitation and CRQLs
47346	86-WOPT-634 86-WOPT-635	cis-1,2-Dichloroethene	J (all detects)	A	Compound quantitation and CRQLs
47346	86-WOPT-638	Tetrachloroethene Trichloroethene	J (all detects) J (all detects)	A	Compound quantitation and CRQLs

**Moffett Air Field, Building 88, CTO 86**  
**Volatiles - Laboratory Blank Data Qualification Summary - SDG 47346**

SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P
47346	86-WOPT-631	Acetone	12U ug/L	A
47346	86-WOPT-632**	Acetone	14U ug/L	A
47346	86-WOPT-633	Acetone	7.9U ug/L	A
47346	86-WOPT-634	Acetone	13U ug/L	A
47346	86-WOPT-635	Acetone	9.7U ug/L	A
47346	86-WOPT-636**	Acetone	6.8U ug/L	A

SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P
47346	86-WOPT-638	Acetone	15U ug/L	A

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Air Field, Building 88, CTO 86  
**Collection Date:** May 3, 2005  
**LDC Report Date:** June 1, 2005  
**Matrix:** Water  
**Parameters:** Metals  
**Validation Level:** EPA Level III & IV  
**Laboratory:** APPL, Inc.

**Sample Delivery Group (SDG):** 47346

**Sample Identification**

86-WOPT-632\*\*  
86-WOPT-633  
86-WOPT-634  
86-WOPT-635  
86-WOPT-636\*\*  
86-WOPT-637  
86-WOPT-638  
86-WOPT-632DL\*\*  
86-WOPT-633DL  
86-WOPT-634DL  
86-WOPT-635DL  
86-WOPT-636DL\*\*  
86-WOPT-637DL  
86-WOPT-638DL  
86-WOPT-637MS  
86-WOPT-637MSD

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 16 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 6010B for Metals. The metals analyzed were Calcium, Iron, Magnesium, Potassium, and Sodium.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Calibration**

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

## **III. Blanks**

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Calcium Potassium	0.033 mg/L 0.11 mg/L	All samples in SDG 47346

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks.

## **IV. ICP Interference Check Sample (ICS) Analysis**

The frequency of analysis was met.

The criteria for analysis were met.

## **V. Matrix Spike Analysis**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:



Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
86-WOPT-637MS/MSD (86-WOPT-632** 86-WOPT-633 86-WOPT-634 86-WOPT-635 86-WOPT-636** 86-WOPT-637 86-WOPT-638 86-WOPT-636DL**)	Magnesium	48.8 (80-120)	47.2 (80-120)	-	J (all detects) UJ (all non-detects)	A
86-WOPT-637MS/MSD (86-WOPT-632** 86-WOPT-633 86-WOPT-634 86-WOPT-635 86-WOPT-636** 86-WOPT-637 86-WOPT-638)	Potassium  Sodium	32.0 (80-120)  79.6 (80-120)	30.0 (80-120)  -	-  -	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A

## VI. Duplicate Sample Analysis

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

## VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Internal Standards

ICP-MS was not utilized in this SDG.

## IX. Furnace Atomic Absorption QC

Graphite furnace atomic absorption was not utilized in this SDG.

## X. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met with the following exceptions:

Diluted Sample	Analyte	%D (Limits)	Associated Samples	Flag	A or P
86-WOPT-637L	Calcium	11.3 ( $\leq 10$ )	All samples in SDG 47346	J (all detects)	A

## XI. Sample Result Verification

All sample result verification met validation criteria with the following exceptions:

Sample	Analyta	Finding	Criteria	Flag	A or P
86-WOPT-632** 86-WOPT-637 86-WOPT-638	Calcium	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	A
86-WOPT-633 86-WOPT-634 86-WOPT-635	Calcium Iron	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects)	A
86-WOPT-636**	Calcium Magnesium	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects)	A

Raw data were not evaluated for samples reviewed by Level III criteria.

## XII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## XIII. Field Duplicates

Samples 86-WOPT-634 and 86-WOPT-635 and samples 86-WOPT-634DL and 86-WOPT-635DL were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:

Compound	Concentration (mg/L)		RPD
	86-WOPT-634	86-WOPT-635	
Calcium	197	184	7
Iron	164	145	12
Magnesium	74.2	68.3	8
Potassium	11.8	12.6	7
Sodium	40.1	39.2	2

Compound	Concentration (mg/L)		RPD
	86-WOPT-634DL	86-WOPT-635DL	
Calcium	229	208	10
Iron	193	171	12

#### **XIV. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Air Field, Building 88, CTO 86**  
**Metals - Data Qualification Summary - SDG 47346**

SDG	Sample	Analyte	Flag	A or P	Reason
47346	86-WOPT-632** 86-WOPT-633 86-WOPT-634 86-WOPT-635 86-WOPT-636** 86-WOPT-637 86-WOPT-638 86-WOPT-638DL**	Magnesium	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicates (%R)
47346	86-WOPT-632** 86-WOPT-633 86-WOPT-634 86-WOPT-635 86-WOPT-636** 86-WOPT-637 86-WOPT-638	Potassium  Sodium	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicates (%R)
47346	86-WOPT-632** 86-WOPT-633 86-WOPT-634 86-WOPT-635 86-WOPT-636** 86-WOPT-637 86-WOPT-638 86-WOPT-632DL** 86-WOPT-633DL 86-WOPT-634DL 86-WOPT-635DL 86-WOPT-636DL** 86-WOPT-637DL 86-WOPT-638DL	Calcium	J (all detects)	A	ICP serial dilution (%D)
47346	86-WOPT-632** 86-WOPT-637 86-WOPT-638	Calcium	J (all detects)	A	Sample result verification
47346	86-WOPT-633 86-WOPT-634 86-WOPT-635	Calcium Iron	J (all detects) J (all detects)	A	Sample result verification
47346	86-WOPT-636**	Calcium Magnesium	J (all detects) J (all detects)	A	Sample result verification

**Moffett Air Field, Building 88, CTO 86**  
**Metals - Laboratory Blank Data Qualification Summary - SDG 47346**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Air Field, Building 88, CTO 86  
**Collection Date:** May 3, 2005  
**LDC Report Date:** June 2, 2005  
**Matrix:** Soil/Water  
**Parameters:** Wet Chemistry  
**Validation Level:** EPA Level III & IV  
**Laboratory:** APPL, Inc./Columbia Analytical Services, Inc.

**Sample Delivery Group (SDG):** 47346/K2503253

**Sample Identification**

86-WOPT-632**	86-WOPT-638DL
86-WOPT-633	86-WOPT-637MS
86-WOPT-634	86-WOPT-637MSD
86-WOPT-635	86-WOPT-639DUP
86-WOPT-636**	
86-WOPT-637	
86-WOPT-638	
86-WOPT-639	
86-WOPT-640**	
86-WOPT-641	
86-WOPT-642	
86-WOPT-643	
86-WOPT-644**	
86-WOPT-645	
86-WOPT-632DL**	
86-WOPT-633DL	
86-WOPT-634DL	
86-WOPT-635DL	
86-WOPT-636DL**	
86-WOPT-637DL	

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 7 soil samples and 17 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 300.0 for Chloride, Nitrate, Nitrite, and Sulfate, EPA Method 310.1 for Carbonate and Bicarbonate, and Walkley-Black method and EPA SW 846 Method 9060 for Total Organic Carbon.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section IX.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

### a. Initial Calibration

All criteria for the initial calibration of each method were met.

### b. Calibration Verification

Calibration verification frequency and analysis criteria were met for each method when applicable.

## III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the method blanks.

## IV. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
86-WOPT-637MS/MSD (86-WOPT-632** 86-WOPT-633 86-WOPT-634 86-WOPT-635 86-WOPT-636** 86-WOPT-637 86-WOPT-638 86-WOPT-632DL** 86-WOPT-633DL 86-WOPT-634DL 86-WOPT-635DL 86-WOPT-636DL** 86-WOPT-637DL 86-WOPT-638DL)	Sulfate	75.3 (80-120)	74.7 (80-120)	-	J (all detects) UJ (all non-detects)	A

## V. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## VI. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VII. Sample Result Verification

All sample result verification met validation criteria with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
86-WOPT-632** 86-WOPT-633 86-WOPT-634 86-WOPT-635 86-WOPT-636** 86-WOPT-637 86-WOPT-638	Sulfate	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	A

Raw data were not evaluated for the samples reviewed by Level III criteria.

## VIII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## IX. Field Duplicates

Samples 86-WOPT-634 and 86-WOPT-635 and samples 86-WOPT-634DL and 86-WOPT-635DL were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration		RPD
	86-WOPT-634	86-WOPT-635	
Chloride	38300 ug/L	38000 ug/L	1
Sulfate	285000 ug/L	283000 ug/L	1
Bicarbonate	251 mg/L	249 mg/L	1
Nitrate as N	1110 ug/L	2840 ug/L	88



Analyte	Concentration (ug/L)		RPD
	86-WOPT-634DL	86-WOPT-635DL	
Sulfate	239000	236000	1

## X. Field Blanks

Sample 86-WOPT-645 was identified as an equipment rinsate. No contaminant concentrations were found in this blank with the following exceptions:

Equipment Rinsate ID	Analyte	Concentration (mg/L)
86-WOPT-645	Total organic carbon	0.66

**Moffett Air Field, Building 88, CTO 86**  
**Wet Chemistry - Data Qualification Summary - SDG 47346/K2503253**

SDG	Sample	Analyte	Flag	A or P	Reason
47346/ K2503253	86-WOPT-632** 86-WOPT-633 86-WOPT-634 86-WOPT-635 86-WOPT-636** 86-WOPT-637 86-WOPT-638 86-WOPT-632DL** 86-WOPT-633DL 86-WOPT-634DL 86-WOPT-635DL 86-WOPT-636DL** 86-WOPT-637DL 86-WOPT-638DL	Sulfate	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicates (%R)
47346/ K2503253	86-WOPT-632** 86-WOPT-633 86-WOPT-634 86-WOPT-635 86-WOPT-636** 86-WOPT-637 86-WOPT-638	Sulfate	J (all detects)	A	Sample result verification

**Moffett Air Field, Building 88, CTO 86**  
**Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 47346/K2503253**

No Sample Data Qualified in this SDG



**TETRA TECH**  
1238 Columbia Street, Suite 100  
San Diego, CA 92101 (619) 234-9696

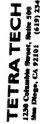
# CHAIN-OF-CUSTODY RECORD

NUMBER **10780**

PROJECT NAME		PURCHASE ORDER NO		ANALYSES REQUIRED										LABORATORY NAME		Project Information Section Do not submit to Laboratory					
PROJECT LOCATION		PROJECT NO												LABORATORY ID (FOR LABORATORY)		Do not submit to Laboratory					
SAMPLER NAME		AIRBILL NUMBER												COMMENTS		LOCATION		DEPTH START END		QC	
PROJECT CONTACT		PROJECT CONTACT PHONE NUMBER																			
SAMPLE ID	DATE COLLECTED	TIME COLLECTED	NO OF CONTAINERS	LEVEL	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
86-WOPT-653	05/05/88	1125	5	X	S	24	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
86-WOPT-654	11/30		5	X	S	24	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
86-WOPT-655	11/40		4	X	S	24	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
86-WOPT-656	11/45		5	X	S	24	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
86-WOPT-657	1300		5	X	S	24	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
86-WOPT-658	1345		4	X	S	24	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
86-WOPT-659	1345		5	X	S	24	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
LABORATORY INSTRUCTIONS/COMMENTS																					
24 hr TAT ON VIC only																					
COMPOSITE DESCRIPTION																					
SAMPLE CONDITION: UNIFORM, RECYCLED, FROM LABORATORY																					
PRESERVATION: SAMPLE CONDITION: <input type="checkbox"/> IMPACT, <input type="checkbox"/> BROKEN																					
COOLING: <input type="checkbox"/> IMPACT, <input type="checkbox"/> BROKEN																					
LABORATORY INFORMATION																					
SAMPLING COMMENT:																					
CPF-88 ZZ																					
10' <del>deep</del> south																					
sample																					
Bldg. 88 OPT																					

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management

NO 407 1.1



## CHAIN-OF-CUSTODY RECORD

1230 Columbia Street, Suite 500  
San Diego, CA 92101 (619) 234-8626

## CHAIN-OF-CUSTODY RECORD

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management

Data Validation Package  
for  
Moffett Air Field, WATS Building 88, CTO 86  
ARF 47379

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## Case Narrative

ARF: 47379

Project: 1990.086D WATS Bldg 88 Moffett Airfield

State Certification Number: CA1312

Results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

### Sample Receipt Information:

The sample group was received May 05, 2005, at 4.0°C. The samples were assigned Analytical Request Form (ARF) number 47379. The sample numbers and requested analyses were compared to the chains of custody. The soil TOC analysis was sub-contracted to Columbia Analytical Laboratory. No exception was noted.

Sample Table

CLIENT ID	APPL ID	Matrix	Date Sampled	Date Received
86-WOPT-646	AX19505	WATER	5/5/05	5/5/05
86-WOPT-647	AX19506	WATER	5/5/05	5/5/05
86-WOPT-648	AX19507	WATER	5/5/05	5/5/05
86-WOPT-649	AX19508	WATER	5/5/05	5/5/05
86-WOPT-650	AX19509	WATER	5/5/05	5/5/05
86-WOPT-651	AX19510	WATER	5/5/05	5/5/05
86-WOPT-652	AX19511	WATER	5/5/05	5/5/05
86-WOPT-653	AX19512	SOIL	5/5/05	5/5/05
86-WOPT-654	AX19513	SOIL	5/5/05	5/5/05
86-WOPT-655	AX19514	SOIL	5/5/05	5/5/05
86-WOPT-656	AX19515	SOIL	5/5/05	5/5/05
86-WOPT-657	AX19516	SOIL	5/5/05	5/5/05
86-WOPT-658	AX19517	SOIL	5/5/05	5/5/05
86-WOPT-659	AX19518	WATER	5/5/05	5/5/05

# **EPA Method 8260B and CLP Volatiles Volatile Organic Analysis**

## **Sample Preparation:**

The samples were purged according to EPA method 5030B, 5035, and CLP. All other holding times were met.

## **Sample Analysis Information:**

The samples were analyzed according to the method using a Hewlett Packard Gas Chromatograph with a mass spectrometer detector. The sample pH were taken after analysis. All samples had a pH of 2.

## **Quality Control/Assurance**

### **Calibrations:**

Initial and continuing calibrations were performed according to the method. For the continuing calibration verification performed on Chico file ID: 0505C22S.D, Acetone increased in response with a 100%D and Methylene Chloride increased in response with a 39%D. All other calibration criteria were met.

### **Blanks:**

For the 050505BC method blank, Acetone and Methylene chloride were detected below the reporting limit but above the MDL at 20µg/kg and 7.0µg/kg. All associated samples containing Acetone and Methylene chloride were "B" flagged. For the 050506AN method blank Acetone was detected above the reporting limit at 10µg/L. All corresponding samples were "B" flagged for Acetone. No other target analyte was detected above the reporting limits in the method blanks.

### **Spikes:**

Laboratory Control Spikes (LCS) were used for quality assurance. A second-source standard was used for the LCS. All spike and second-source criteria were met. All recoveries were within acceptable limits.

No sample was designated by the client for MS/MSD analysis.

### **Surrogates**

All surrogate recoveries were within control limits.

### **Tuning:**

The instrument was tuned using BFB. All method criteria were met.

### **Internal Standards**

The internal standard area counts were compared to the mid-point of the initial calibration according to method 8260. Sample 86-WOPT recovered the internal standard 1,4-Dichlorobenzene-d4 below the lower control limit. The sample was re-analyzed at a dilution. The compounds that exceeded linear calibration range as well as the compounds calculated using the low IS are reported on a second form 1 for these two samples. The compounds that are calculated using the IS are 1,1,2,2-Tetrachloroethane and 4-Methyl-2-Pentanone. All other method criteria were met. The internal standard area counts were compared to the continuing calibration according to CLP. All method criteria were met.

**Summary:**

No additional problem was encountered.



## **EPA Methods 6010B Metals**

### **Digestion Information:**

The water was digested according to EPA methods 3010A. No exceptions were encountered. All holding times were met.

### **Analysis Information:**

#### **Samples:**

The sample was analyzed for dissolved metals according to EPA method 6010B using a Perkin Elmer Optima 4300DV.

#### **Calibrations:**

Calibrations were performed according to the methods for the initial calibration and the initial calibration verification. The initial calibration verification is prepared from a second source standard.

#### **Blanks:**

Calcium and Potassium were detected below the reporting limit but above the MDL in the 050510AA method blank at 0.033mg/L and 0.11mg/L respectively. No other target metal was detected above the reporting limits in the method blank.

#### **Spikes:**

Laboratory Control Spikes (LCS/LCSD) were used for quality assurance. LCS recoveries were within acceptance limits.

No sample was designated by the client for MS/MSD analysis.

### **Summary:**

No analytical exception is noted. All data are acceptable.

# **EPA Methods 300.0, 310.1 and 9060A**

## **Anions, Carbonates & Bi-carbonates and Total Organic Carbon**

### **Sample Preparation Information:**

A Dionex DX500 ion chromatograph was used for the EPA 300.0 analysis. The TOC was analyzed using a Shimadzu TOC-5050A instrument. The samples were screened down to the MDL.

### **Analysis Information:**

#### **Samples:**

The sample was analyzed according to the methods. A Dionex DX500 ion chromatograph was used for the EPA 300.0 analysis.

#### **Calibrations:**

Calibrations were performed according to the methods for the initial calibration and the initial calibration verification. The initial calibration verification is prepared from a second source standard.

#### **Blanks:**

No target analyte was detected above the reporting limits in the method blanks.

#### **Spikes:**

Laboratory Control Spikes (LCS/LCSD) and Sample Duplicates were used for quality assurance. All recoveries met acceptance criteria.

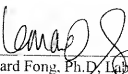
No Sample was designated by the client for MS/MSD analysis. Sample 86-WOPT-652 was designated by the laboratory for MS/MSD analysis for the EPA 300.0 and EPA 310.1 analyses. All recoveries met acceptance criteria.

### **Summary:**

No analytical exception is noted.

## CERTIFICATION

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the hard copy has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

 5/22/05  
\_\_\_\_\_  
Leonard Fong, Ph.D., Laboratory Director / Date

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47379

Sample ID: 96-WOPT-646

APPL ID: AX19505

Sample Collection Date: 5/5/05

QCG: SC42VT-050506AN-86527

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	5/6/05	5/6/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	5/6/05	5/6/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	0.5	0.21	ug/L	5/6/05	5/6/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	5/6/05	5/6/05
CLP VOL	1,1-Dichloroethane	Not detected	0.5	0.19	ug/L	5/6/05	5/6/05
CLP VOL	1,1-Dichloroethene	Not detected	0.5	0.30	ug/L	5/6/05	5/6/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	5/6/05	5/6/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	5/6/05	5/6/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	5/6/05	5/6/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	5/6/05	5/6/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	5/6/05	5/6/05
CLP VOL	Acetone	15 B	5	0.95	ug/L	5/6/05	5/6/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	5/6/05	5/6/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	5/6/05	5/6/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	5/6/05	5/6/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	5/6/05	5/6/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	5/6/05	5/6/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	5/6/05	5/6/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	5/6/05	5/6/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	5/6/05	5/6/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	5/6/05	5/6/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	5/6/05	5/6/05
CLP VOL	cis-1,2-Dichloroethene	Not detected	0.5	0.16	ug/L	5/6/05	5/6/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	5/6/05	5/6/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	5/6/05	5/6/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	5/6/05	5/6/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	5/6/05	5/6/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	5/6/05	5/6/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	5/6/05	5/6/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	5/6/05	5/6/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	5/6/05	5/6/05

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0506N05  
Instrument: Neo  
Sequence: N050503  
Dilution Factor: 1  
Initials: LF

Printed: 5/24/05 12:51:17 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-646

Sample Collection Date: 5/5/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47379

APPL ID: AX19505

QCG: SC42VT-050506AN-86527

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	Not detected	0.5	0.15	ug/L	5/6/05	5/6/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	5/6/05	5/6/05
CLP VOL	trans-1,2-Dichloroethene	Not detected	0.5	0.19	ug/L	5/6/05	5/6/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	5/6/05	5/6/05
CLP VOL	Trichloroethene	Not detected	0.5	0.16	ug/L	5/6/05	5/6/05
CLP VOL	Vinyl Chloride	Not detected	0.5	0.23	ug/L	5/6/05	5/6/05
CLP VOL	Surrogate Recovery (BFB)	108	75-125		%	5/6/05	5/6/05
CLP VOL	Surrogate Recovery (DCA)	134	62-139		%	5/6/05	5/6/05
CLP VOL	Surrogate Recovery (TOL)	108	75-125		%	5/6/05	5/6/05

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0506N05  
Instrument: Neo  
Sequence: N050503  
Dilution Factor: 1  
Initials: LF

Printed 5/24/05 1:25:17 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47379

Sample ID: 86-WOPT-647

APPL ID: AX19506

Sample Collection Date: 5/5/05

QCG: \$C42VT-050506AN-86527

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	1.9	0.5	0.14	ug/L	5/6/05	5/6/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	5/6/05	5/6/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	5.9	0.5	0.21	ug/L	5/6/05	5/6/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	5/6/05	5/6/05
CLP VOL	1,1-Dichloroethane	23	0.5	0.19	ug/L	5/6/05	5/6/05
CLP VOL	1,1-Dichloroethene	17	0.5	0.30	ug/L	5/6/05	5/6/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	5/6/05	5/6/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	5/6/05	5/6/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	5/6/05	5/6/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	5/6/05	5/6/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	5/6/05	5/6/05
CLP VOL	Acetone	11	5	0.95	ug/L	5/6/05	5/6/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	5/6/05	5/6/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	5/6/05	5/6/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	5/6/05	5/6/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	5/6/05	5/6/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	5/6/05	5/6/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	5/6/05	5/6/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	5/6/05	5/6/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	5/6/05	5/6/05
CLP VOL	Chloroform	0.50	0.5	0.16	ug/L	5/6/05	5/6/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	5/6/05	5/6/05
CLP VOL	cis-1,2-Dichloroethene	250 E	0.5	0.16	ug/L	5/6/05	5/6/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	5/6/05	5/6/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	5/6/05	5/6/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	5/6/05	5/6/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	5/6/05	5/6/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	5/6/05	5/6/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	5/6/05	5/6/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	5/6/05	5/6/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	5/6/05	5/6/05

E = The reported value exceeds linear range.

Run #: 0506N06  
Instrument: Neo  
Sequence: N050503  
Dilution Factor: 1  
Initials: LF

Printed: 5/24/05 1:25:17 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-647

Sample Collection Date: 5/5/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47379

APPL ID: AX19506

QCG: SC42VT-050506AN-86527

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	230 E	0.5	0.15	ug/L	5/6/05	5/6/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	5/6/05	5/6/05
CLP VOL	trans-1,2-Dichloroethene	2.0	0.5	0.19	ug/L	5/6/05	5/6/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	5/6/05	5/6/05
CLP VOL	Trichloroethene	830 E	0.5	0.16	ug/L	5/6/05	5/6/05
CLP VOL	Vinyl Chloride	0.99	0.5	0.23	ug/L	5/6/05	5/6/05
CLP VOL	Surrogate Recovery (BFB)	108	75-125		%	5/6/05	5/6/05
CLP VOL	Surrogate Recovery (DCA)	105	62-139		%	5/6/05	5/6/05
CLP VOL	Surrogate Recovery (TOL)	110	75-125		%	5/6/05	5/6/05

E = The reported value exceeds linear range.

Run #: 0506N06  
Instrument: Neo  
Sequence: N050503  
Dilution Factor: 1  
Initials: LF

Printed: 5/24/05 1:25:17 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-647

Sample Collection Date: 5/5/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47379

APPL ID: AX19506

QCG: SC42VD-050515AS-87285

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	310	200	64.00	ug/L	5/15/05	5/15/05
CLP VOL	Tetrachloroethene	170 J	200	60.00	ug/L	5/15/05	5/15/05
CLP VOL	Trichloroethene	770	200	64.00	ug/L	5/15/05	5/15/05
CLP VOL	Surrogate Recovery (BFB)	100	75-125		%	5/15/05	5/15/05
CLP VOL	Surrogate Recovery (DCA)	96.9	62-139		%	5/15/05	5/15/05
CLP VOL	Surrogate Recovery (TOL)	104	75-125		%	5/15/05	5/15/05

J = Estimated value, below quantitation limit.

Run #: 0515S06  
Instrument: Sweetpea  
Sequence: S050513  
Dilution Factor: 400  
Initials: LF

Printed: 5/24/05 1:25:17 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-643

Sample Collection Date: 5/5/05

ARF: 47379

APPL ID: AX19507

QCG: SC42VT-050506AN-86527

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	5/6/05	5/6/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	5/6/05	5/6/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	0.5	0.21	ug/L	5/6/05	5/6/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	5/6/05	5/6/05
CLP VOL	1,1-Dichloroethane	46	0.5	0.19	ug/L	5/6/05	5/6/05
CLP VOL	1,1-Dichloroethene	54	0.5	0.30	ug/L	5/6/05	5/6/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	5/6/05	5/6/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	5/6/05	5/6/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	5/6/05	5/6/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	5/6/05	5/6/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	5/6/05	5/6/05
CLP VOL	Acetone	16	5	0.95	ug/L	5/6/05	5/6/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	5/6/05	5/6/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	5/6/05	5/6/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	5/6/05	5/6/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	5/6/05	5/6/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	5/6/05	5/6/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	5/6/05	5/6/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	5/6/05	5/6/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	5/6/05	5/6/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	5/6/05	5/6/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	5/6/05	5/6/05
CLP VOL	cis-1,2-Dichloroethene	1600 E	0.5	0.16	ug/L	5/6/05	5/6/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	5/6/05	5/6/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	5/6/05	5/6/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	5/6/05	5/6/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	5/6/05	5/6/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	5/6/05	5/6/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	5/6/05	5/6/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	5/6/05	5/6/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	5/6/05	5/6/05

E = The reported value exceeds linear range.

Run #: 0506N07  
Instrument: Neo  
Sequence: N050503  
Dilution Factor: 1  
Initials: LF

Printed 5/24/05 1 25 17 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-648

Sample Collection Date: 5/5/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47379

APPL ID: AX19507

QCG: SC42VT-050506AN-86527

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	6.8	0.5	0.15	ug/L	5/6/05	5/6/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	5/6/05	5/6/05
CLP VOL	trans-1,2-Dichloroethene	14	0.5	0.19	ug/L	5/6/05	5/6/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	5/6/05	5/6/05
CLP VOL	Trichloroethene	24	0.5	0.16	ug/L	5/6/05	5/6/05
CLP VOL	Vinyl Chloride	2.6	0.5	0.23	ug/L	5/6/05	5/6/05
CLP VOL	Surrogate Recovery (BFB)	108	75-125		%	5/6/05	5/6/05
CLP VOL	Surrogate Recovery (DCA)	114	62-139		%	5/6/05	5/6/05
CLP VOL	Surrogate Recovery (TOL)	107	75-125		%	5/6/05	5/6/05

E = The reported value exceeds linear range.

Run #: 0506N07  
Instrument: Neo  
Sequence: N050503  
Dilution Factor: 1  
Initials: LF

Printed: 5/24/05 1:25:17 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deera Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield  
**Sample ID: 86-WCPT-648**  
Sample Collection Date: 5/5/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47379  
**APPL ID: AX19507**  
QCG: SC42VD-050515AS-87285

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	1800	100	32.00	ug/L	5/15/05	5/15/05
CLP VOL	Surrogate Recovery (BFB)	102	75-125		%	5/15/05	5/15/05
CLP VOL	Surrogate Recovery (DCA)	97.1	62-139		%	5/15/05	5/15/05
CLP VOL	Surrogate Recovery (TOL)	107	75-125		%	5/15/05	5/15/05

Run #: 0515S07  
Instrument: Sweetpea  
Sequence: S050513  
Dilution Factor: 200  
Initials: LF

Printed: 5/24/05 1:25:17 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1590 086D WATS Blog 88 Moffett Airfield

ARF: 47379

Sample ID: 86-WOPT-649

APPL ID: AX19508

Sample Collection Date: 5/5/05

QCG: \$C42VT-050506AN-86527

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	1.2	0.5	0.14	ug/L	5/6/05	5/6/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	5/6/05	5/6/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	5.5	0.5	0.21	ug/L	5/6/05	5/6/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	5/6/05	5/6/05
CLP VOL	1,1-Dichloroethane	11	0.5	0.19	ug/L	5/6/05	5/6/05
CLP VOL	1,1-Dichloroethene	22	0.5	0.30	ug/L	5/6/05	5/6/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	5/6/05	5/6/05
CLP VOL	1,2-Dichloropropane	0.24 J	0.5	0.17	ug/L	5/6/05	5/6/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	5/6/05	5/6/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	5/6/05	5/6/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	5/6/05	5/6/05
CLP VOL	Acetone	14	5	0.95	ug/L	5/6/05	5/6/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	5/6/05	5/6/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	5/6/05	5/6/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	5/6/05	5/6/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	5/6/05	5/6/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	5/6/05	5/6/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	5/6/05	5/6/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	5/6/05	5/6/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	5/6/05	5/6/05
CLP VOL	Chloroform	0.20 J	0.5	0.16	ug/L	5/6/05	5/6/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	5/6/05	5/6/05
CLP VOL	cis-1,2-Dichloroethene	900 E	0.5	0.16	ug/L	5/6/05	5/6/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	5/6/05	5/6/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	5/6/05	5/6/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	5/6/05	5/6/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	5/6/05	5/6/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	5/6/05	5/6/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	5/6/05	5/6/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	5/6/05	5/6/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	5/6/05	5/6/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0506N08  
Instrument: Neo  
Sequence: N050503  
Dilution Factor: 1  
Initials: LF

Printed: 5/24/05 1:25:17 PM  
APPL F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1340 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-649

Sample Collection Date: 5/5/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47379

APPL ID: AX19508

QCG: \$C42VT-050506AN-86527

Method	Analyte	Result	POL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	340 E	0.5	0.15	ug/L	5/6/05	5/6/05
CLP VOL	Toluene	0.19 J	0.5	0.17	ug/L	5/6/05	5/6/05
CLP VOL	trans-1,2-Dichloroethene	16	0.5	0.19	ug/L	5/6/05	5/5/05
CLP VOL	trans-1 3-Dichloropropene	Not detected	0.5	0.18	ug/L	5/6/05	5/6/05
CLP VOL	Trichloroethene	850 E	0.5	0.16	ug/L	5/6/05	5/6/05
CLP VOL	Vinyl Chloride	1.1	0.5	0.23	ug/L	5/6/05	5/5/05
CLP VOL	Surrogate Recovery (BFB)	106	75-125		%	5/6/05	5/6/05
CLP VOL	Surrogate Recovery (DCA)	105	62-139		%	5/6/05	5/6/05
CLP VOL	Surrogate Recovery (TOL)	111	75-125		%	5/6/05	5/6/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0506N08  
Instrument: Neo  
Sequence: N050503  
Dilution Factor: 1  
Initials: LF

Printed: 5/24/05 1:25:17 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 68 Moffett Airfield  
Sample ID: 85-WOPT-649  
Sample Collection Date: 5/5/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47379  
APPL ID: AX19508  
QCG: \$C42VD-050515AS-87285

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	670	100	32.00	ug/L	5/15/05	5/15/05
CLP VOL	Tetrachloroethene	180	100	30.00	ug/L	5/15/05	5/15/05
CLP VOL	Trichloroethene	560	100	32.00	ug/L	5/15/05	5/15/05
CLP VOL	Surrogate Recovery (BFB)	102	75-125		%	5/15/05	5/15/05
CLP VOL	Surrogate Recovery (DCA)	97.3	62-139		%	5/15/05	5/15/05
CLP VOL	Surrogate Recovery (TOL)	106	75-125		%	5/15/05	5/15/05

Run #: 0515S08  
Instrument: Sweetpea  
Sequence: S050513  
Dilution Factor: 200  
Initials: LF

Printed: 5/24/05 1:25:17 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47379

Sample ID: 86-WOPT-650

APPL ID: AX19509

Sample Collection Date: 5/5/05

QCG: SC42VT-050506AN-86527

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	1.6	0.5	0.14	ug/L	5/6/05	5/6/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	5/6/05	5/6/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	89	0.5	0.21	ug/L	5/6/05	5/6/05
CLP VOL	1,1,2-Trichloroethane	0.43 J	0.5	0.2	ug/L	5/6/05	5/6/05
CLP VOL	1,1-Dichloroethane	8.5	0.5	0.19	ug/L	5/6/05	5/6/05
CLP VOL	1,1-Dichloroethene	32	0.5	0.30	ug/L	5/6/05	5/6/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	5/6/05	5/6/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	5/6/05	5/6/05
CLP VOL	2-Butanone	Not detected	5	0.8	ug/L	5/6/05	5/6/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	5/6/05	5/6/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	5/6/05	5/6/05
CLP VOL	Acetone	10 B	5	0.95	ug/L	5/6/05	5/6/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	5/6/05	5/6/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	5/6/05	5/6/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	5/6/05	5/6/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	5/6/05	5/6/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	5/6/05	5/6/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	5/6/05	5/6/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	5/6/05	5/6/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	5/6/05	5/6/05
CLP VOL	Chloroform	0.39 J	0.5	0.16	ug/L	5/6/05	5/6/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	5/6/05	5/6/05
CLP VOL	cis-1,2-Dichloroethane	110	0.5	0.16	ug/L	5/6/05	5/6/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	5/6/05	5/6/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	5/6/05	5/6/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	5/6/05	5/6/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	5/6/05	5/6/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	5/6/05	5/6/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	5/6/05	5/6/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	5/6/05	5/6/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	5/6/05	5/6/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0506N09  
Instrument: Neo  
Sequence: N050503  
Dilution Factor: 1  
Initials: LF

Printed 5/25/05 9:55:48 AM  
APPL-F1-S-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-650

Sample Collection Date: 5/5/05

ARF: 47379

APPL ID: AX19509

QCG: SC42VT-050506AN-86527

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	2.7	0.5	0.15	ug/L	5/6/05	5/6/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	5/6/05	5/6/05
CLP VOL	trans-1,2-Dichloroethene	1.3	0.5	0.19	ug/L	5/6/05	5/6/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	5/6/05	5/6/05
CLP VOL	Trichloroethene	1500 E	0.5	0.16	ug/L	5/6/05	5/6/05
CLP VOL	Vinyl Chloride	0.72	0.5	0.23	ug/L	5/6/05	5/6/05
CLP VOL	Surrogate Recovery (BFB)	114	75-125		%	5/6/05	5/6/05
CLP VOL	Surrogate Recovery (DCA)	108	62-139		%	5/6/05	5/6/05
CLP VOL	Surrogate Recovery (TOL)	119	75-125		%	5/6/05	5/6/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0506N09  
Instrument: Neo  
Sequence: N050503  
Dilution Factor: 1  
Initials: LF

Printed: 5/25/05 9:55:49 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Muffett Airfield  
Sample ID: 86-WOPT-650  
Sample Collection Date: 5/5/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47379  
APPL ID: AX19509  
QCG: SC42VD-050515AS-87285

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Trichloroethene	3600	200	64.00	ug/L	5/15/05	5/15/05
CLP VOL	Surrogate Recovery (BFB)	107	75-125		%	5/15/05	5/15/05
CLP VOL	Surrogate Recovery (DCA)	102	62-139		%	5/15/05	5/15/05
CLP VOL	Surrogate Recovery (TOL)	111	75-125		%	5/15/05	5/15/05

Run #: 0515S09  
Instrument: Sweetpea  
Sequence: S050513  
Dilution Factor: 400  
Initials: LF

Printed: 5/24/05 1:25:17 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, inc.  
1940 E. Deera Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

ARF: 47379

Sample ID: 86-WOPT-651

APPL ID: AX19510

Sample Collection Date: 5/5/05

QCG: \$C42VT-050506AN-86527

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	1.6	0.5	0.14	ug/L	5/6/05	5/6/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	5/6/05	5/6/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	73	0.5	0.21	ug/L	5/6/05	5/6/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	5/6/05	5/6/05
CLP VOL	1,1-Dichloroethane	7.6	0.5	0.19	ug/L	5/6/05	5/6/05
CLP VOL	1,1-Dichloroethene	29	0.5	0.30	ug/L	5/6/05	5/6/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	5/6/05	5/6/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	5/6/05	5/6/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	5/6/05	5/6/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	5/6/05	5/6/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	5/6/05	5/6/05
CLP VOL	Acetone	15	5	0.95	ug/L	5/6/05	5/6/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	5/6/05	5/6/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	5/6/05	5/6/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	5/6/05	5/6/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	5/6/05	5/6/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	5/6/05	5/6/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	5/6/05	5/6/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	5/6/05	5/6/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	5/6/05	5/6/05
CLP VOL	Chloroform	0.34 J	0.5	0.16	ug/L	5/6/05	5/6/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	5/6/05	5/6/05
CLP VOL	cis-1,2-Dichloroethene	98	0.5	0.16	ug/L	5/6/05	5/6/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	5/6/05	5/6/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	5/6/05	5/6/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	5/6/05	5/6/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	5/6/05	5/6/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	5/6/05	5/6/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	5/6/05	5/6/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	5/6/05	5/6/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	5/6/05	5/6/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0506N10  
Instrument: Neo  
Sequence: N050503  
Dilution Factor: 1  
Initials: LF

Printed 5/25/05 11:18:12 PM  
APPL-F1-SC-MCRes/MCPFL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bidg 88 Moffett Airfield  
Sample ID: 86-WOPT-651  
Sample Collection Date: 5/5/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47379

APPL ID: AX19510

QCG: SC42VT-050506AN-86527

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	2.6	0.5	0.15	ug/L	5/6/05	5/6/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	5/6/05	5/6/05
CLP VOL	trans-1,2-Dichloroethene	1.1	0.5	0.19	ug/L	5/6/05	5/6/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	5/6/05	5/6/05
CLP VOL	Trichloroethene	1500 E	0.5	0.16	ug/L	5/6/05	5/6/05
CLP VOL	Vinyl Chloride	0.61	0.5	0.23	ug/L	5/6/05	5/6/05
CLP VOL	Surrogate Recovery (BFB)	103	75-125		%	5/6/05	5/6/05
CLP VOL	Surrogate Recovery (DCA)	98.1	62-139		%	5/6/05	5/6/05
CLP VOL	Surrogate Recovery (TOL)	112	75-125		%	5/6/05	5/6/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0506N10  
Instrument: Neo  
Sequence: N050503  
Dilution Factor: 1  
Initials: LF

Printed: 5/25/05 1:18:12 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-651

Sample Collection Date: 5/5/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47379

APPL ID: AX19510

QCG: SC42VD-050515AS-87285

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Trichloroethene	2400	100	32.00	ug/L	5/15/05	5/15/05
CLP VOL	Surrogate Recovery (BFB)	110	75-125		%	5/15/05	5/15/05
CLP VOL	Surrogate Recovery (DCA)	95.3	62-139		%	5/15/05	5/15/05
CLP VOL	Surrogate Recovery (TOL)	118	75-125		%	5/15/05	5/15/05

Run #: 0515S10  
Instrument: Sweetpea  
Sequence: S050513  
Dilution Factor: 200  
Initials: LF

Printed: 5/24/05 1:25:17 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Blenkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47379

Sample ID: 86-WOPT-652

APPL ID: AX19511

Sample Collection Date: 5/5/05

QCG: SC42VT-050506AN-86527

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	1.5	0.5	0.14	ug/L	5/6/05	5/6/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	5/6/05	5/6/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	96	0.5	0.21	ug/L	5/6/05	5/6/05
CLP VOL	1,1,2-Trichloroethane	0.40 J	0.5	0.2	ug/L	5/6/05	5/6/05
CLP VOL	1,1-Dichloroethane	5.9	0.5	0.19	ug/L	5/6/05	5/6/05
CLP VOL	1,1-Dichloroethene	31	0.5	0.30	ug/L	5/6/05	5/6/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	5/6/05	5/6/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	5/6/05	5/6/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	5/6/05	5/6/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	5/6/05	5/6/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	5/6/05	5/6/05
CLP VOL	Acetone	9.0	5	0.95	ug/L	5/6/05	5/6/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	5/6/05	5/6/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	5/6/05	5/6/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	5/6/05	5/6/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	5/6/05	5/6/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	5/6/05	5/6/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	5/6/05	5/6/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	5/6/05	5/6/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	5/6/05	5/6/05
CLP VOL	Chloroform	0.37 J	0.5	0.16	ug/L	5/6/05	5/6/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	5/6/05	5/6/05
CLP VOL	cis-1,2-Dichloroethene	71	0.5	0.16	ug/L	5/6/05	5/6/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	5/6/05	5/6/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	5/6/05	5/6/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	5/6/05	5/6/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	5/6/05	5/6/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	5/6/05	5/6/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	5/6/05	5/6/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	5/6/05	5/6/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	5/6/05	5/6/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0506N11  
Instrument: Neo  
Sequence: N050503  
Dilution Factor: 1  
Initials: LF

Printed 5/25/05 1:24:37 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deane Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-652**

Sample Collection Date: 5/5/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47379

**APPL ID: AX19511**

QCG: SC42VT-050506AN-86527

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	7.6	0.5	0.15	ug/L	5/6/05	5/6/05
CLP VOL	Toluene	0.30 J	0.5	0.17	ug/L	5/6/05	5/6/05
CLP VOL	trans-1,2-Dichloroethene	1.1	0.5	0.19	ug/L	5/6/05	5/6/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	5/6/05	5/6/05
CLP VOL	Trichloroethene	1600 E	0.5	0.16	ug/L	5/6/05	5/6/05
CLP VOL	Vinyl Chloride	0.72	0.5	0.23	ug/L	5/6/05	5/6/05
CLP VOL	Surrogate Recovery (BFB)	112	75-125		%	5/6/05	5/6/05
CLP VOL	Surrogate Recovery (DCA)	105	62-139		%	5/6/05	5/6/05
CLP VOL	Surrogate Recovery (TOL)	115	75-125		%	5/6/05	5/6/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0506N11  
Instrument: Neo  
Sequence: N050503  
Dilution Factor: 1  
Initials: LF

Printed: 5/25/05 1:24:37 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-652

Sample Collection Date: 5/5/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47379

APPL ID: AX19511

QCG: SC42VD-050515AS-87285

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Trichloroethene	2300	100	32.00	ug/L	5/16/05	5/16/05
CLP VOL	Surrogate Recovery (BFB)	99.6	75-125		%	5/16/05	5/16/05
CLP VOL	Surrogate Recovery (DCA)	106	82-139		%	5/16/05	5/16/05
CLP VOL	Surrogate Recovery (TOL)	108	75-125		%	5/16/05	5/16/05

Run #: 0515S11  
Instrument: Sweetpea  
Sequence: S050513  
Dilution Factor: 200  
Initials: LF

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lise Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47379

Sample ID: 86-WOPT-653

APPL ID: AX19512

Sample Collection Date: 5/5/05

QCG: S86TTS-050505BC-86524

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 22.9 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	7	1.0	ug/Kg	5/6/05	5/6/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	7	1.6	ug/Kg	5/6/05	5/6/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	7	0.62	ug/Kg	5/6/05	5/6/05
EPA 8260B	1,1-Dichloroethane	20	7	1.5	ug/Kg	5/6/05	5/6/05
EPA 8260B	1,1-Dichloroethene	43	7	1.0	ug/Kg	5/6/05	5/6/05
EPA 8260B	1,2-Dichloroethane	Not detected	7	0.93	ug/Kg	5/6/05	5/6/05
EPA 8260B	1,2-Dichloropropane	Not detected	7	0.80	ug/Kg	5/6/05	5/6/05
EPA 8260B	2-Butanone	Not detected	65	0.92	ug/Kg	5/6/05	5/6/05
EPA 8260B	2-Hexanone	Not detected	65	0.21	ug/Kg	5/6/05	5/6/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	65	1.2	ug/Kg	5/6/05	5/6/05
EPA 8260B	Acetone	46 B J	130	3.6	ug/Kg	5/6/05	5/6/05
EPA 8260B	Benzene	Not detected	7	0.82	ug/Kg	5/6/05	5/6/05
EPA 8260B	Bromodichloromethane	Not detected	7	0.89	ug/Kg	5/6/05	5/6/05
EPA 8260B	Bromoform	Not detected	7	1.0	ug/Kg	5/6/05	5/6/05
EPA 8260B	Bromomethane	Not detected	13	2.1	ug/Kg	5/6/05	5/6/05
EPA 8260B	Carbon disulfide	Not detected	7	1.4	ug/Kg	5/6/05	5/6/05
EPA 8260B	Carbon tetrachloride	Not detected	7	1.0	ug/Kg	5/6/05	5/6/05
EPA 8260B	Chlorobenzene	Not detected	7	0.64	ug/Kg	5/6/05	5/6/05
EPA 8260B	Chloroethane	Not detected	7	2.0	ug/Kg	5/6/05	5/6/05
EPA 8260B	Chloroform	Not detected	7	1.8	ug/Kg	5/6/05	5/6/05
EPA 8260B	Chloromethane	Not detected	7	2.4	ug/Kg	5/6/05	5/6/05
EPA 8260B	cis-1,2-Dichloroethene	3100 E	7	1.4	ug/Kg	5/6/05	5/6/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	7	0.61	ug/Kg	5/6/05	5/6/05
EPA 8260B	Dibromochloromethane	Not detected	7	1.1	ug/Kg	5/6/05	5/6/05
EPA 8260B	Ethylbenzene	Not detected	7	0.83	ug/Kg	5/6/05	5/6/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	7	1.1	ug/Kg	5/6/05	5/6/05
EPA 8260B	Methylene chloride	7.5 B J	65	5.9	ug/Kg	5/6/05	5/6/05
EPA 8260B	Styrene	Not detected	7	0.89	ug/Kg	5/6/05	5/6/05
EPA 8260B	Tetrachloroethene	4300 E	7	0.70	ug/Kg	5/6/05	5/6/05
EPA 8260B	Toluene	Not detected	7	0.84	ug/Kg	5/6/05	5/6/05
EPA 8260B	trans-1,2-Dichloroethene	7.6	7	1.8	ug/Kg	5/6/05	5/6/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0505C28

Instrument: Chico

Sequence: C050501

Dilution Factor: 1

Initials: LF

Printed: 5/24/05 1 25:17 PM

APPL-F1-SC-MCRes/MCQPL-REG MDLs



## EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990.096D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-653

Sample Collection Date: 5/5/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47379

APPL ID: AX19512

QCG: \$86TTS-050505BC-86524

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	7	0.56	ug/Kg	5/6/05	5/6/05
EPA 8260B	Trichloroethene	2700 E	7	0.92	ug/Kg	5/6/05	5/6/05
EPA 8260B	Vinyl Acetate	Not detected	65	1.3	ug/Kg	5/6/05	5/6/05
EPA 8260B	Vinyl chloride	2.7 J	7	2.2	ug/Kg	5/6/05	5/6/05
EPA 8260B	Xylenes	Not detected	19	0.88	ug/Kg	5/6/05	5/6/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	117	52-149		%	5/6/05	5/6/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	69.0	65-135		%	5/6/05	5/6/05
EPA 8260B	Surrogate recovery: Toluene-d8	104	65-135		%	5/6/05	5/6/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.  
B = The analyte was found in a method blank, as well as in the sample.

Run #: 0505C28  
Instrument: Chico  
Sequence: C050501  
Dilution Factor: 1  
Initials: LF

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47379

Sample ID: 86-WOPT-653

APPL ID: AX19512

Sample Collection Date: 5/5/05

QCG: S86TTD-050519BM-87284

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 22.9 Percent Moisture.)							
EPA 8260B-	1,1,2,2-Tetrachloroethane	Not detected	280.0	180	ug/Kg	5/19/05	5/19/05
EPA 8260B-	4-Methyl-2-pentanone	Not detected	2800	1200	ug/Kg	5/19/05	5/19/05
EPA 8260B-	cis-1,2-Dichloroethene	1700	320	100	ug/Kg	5/19/05	5/19/05
EPA 8260B-	Tetrachloroethene	6700	320	97	ug/Kg	5/19/05	5/19/05
EPA 8260B-	Trichloroethene	2400	320	100	ug/Kg	5/19/05	5/19/05
EPA 8260B-	Surrogate recovery: 1,2-Dichloroethane	94.1	52-149		%	5/19/05	5/19/05
EPA 8260B-	Surrogate recovery: 4-Bromofluorobenz	89.7	65-135		%	5/19/05	5/19/05
EPA 8260B-	Surrogate recovery: Toluene-d8	94.8	65-135		%	5/19/05	5/19/05

Run #: 0519M11  
Instrument: Max  
Sequence: M050517  
Dilution Factor: 500  
Initials: LF

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

ARF: 47379

Sample ID: 86-WOPT-654

APPL ID: AX19513

Sample Collection Date: 5/5/05

QCQ: \$86TTS-050505BC-86524

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 18.0 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	0.99	ug/Kg	5/6/05	5/6/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.5	ug/Kg	5/6/05	5/6/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.59	ug/Kg	5/6/05	5/6/05
EPA 8260B	1,1-Dichloroethane	Not detected @ 4.4 +	6	1.4	ug/Kg	5/6/05	5/6/05
EPA 8260B	1,1-Dichloroethene	14	6	0.96	ug/Kg	5/6/05	5/6/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.88	ug/Kg	5/6/05	5/6/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.76	ug/Kg	5/6/05	5/6/05
EPA 8260B	2-Butanone	Not detected	61	0.87	ug/Kg	5/6/05	5/6/05
EPA 8260B	2-Hexanone	Not detected	61	0.20	ug/Kg	5/6/05	5/6/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	61	1.1	ug/Kg	5/6/05	5/6/05
EPA 8260B	Acetone	42 B J	120	3.4	ug/Kg	5/6/05	5/6/05
EPA 8260B	Benzene	Not detected	6	0.77	ug/Kg	5/6/05	5/6/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.84	ug/Kg	5/6/05	5/6/05
EPA 8260B	Bromoform	Not detected	6	0.98	ug/Kg	5/6/05	5/6/05
EPA 8260B	Bromomethane	Not detected	12	2.0	ug/Kg	5/6/05	5/6/05
EPA 8260B	Carbon disulfide	Not detected	6	1.3	ug/Kg	5/6/05	5/6/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.98	ug/Kg	5/6/05	5/6/05
EPA 8260B	Chlorobenzene	Not detected	6	0.60	ug/Kg	5/6/05	5/6/05
EPA 8260B	Chloroethane	Not detected	6	1.9	ug/Kg	5/6/05	5/6/05
EPA 8260B	Chloroform	Not detected	6	1.7	ug/Kg	5/6/05	5/6/05
EPA 8260B	Chloromethane	Not detected	6	2.2	ug/Kg	5/6/05	5/6/05
EPA 8260B	cis-1,2-Dichloroethene	2100 E	6	1.3	ug/Kg	5/6/05	5/6/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.57	ug/Kg	5/6/05	5/6/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.0	ug/Kg	5/6/05	5/6/05
EPA 8260B	Ethylbenzene	Not detected	6	0.78	ug/Kg	5/6/05	5/6/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	5/6/05	5/6/05
EPA 8260B	Methylene chloride	6.6 B J	61	5.6	ug/Kg	5/6/05	5/6/05
EPA 8260B	Styrene	Not detected	6	0.84	ug/Kg	5/6/05	5/6/05
EPA 8260B	Tetrachloroethene	58	6	0.66	ug/Kg	5/6/05	5/6/05
EPA 8260B	Toluene	Not detected	6	0.79	ug/Kg	5/6/05	5/6/05
EPA 8260B	trans-1,2-Dichloroethene	7.5	6	1.6	ug/Kg	5/6/05	5/6/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0505C29

Instrument: Chico

Sequence: C050501

Dilution Factor: 1

Initials: LF

Printed: 5/24/05 1:25:18 PM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

## EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bidg 88 Moffett Airfield

Sample ID: 86-WOPT-654

Sample Collection Date: 5/5/05

ARF: 47379

APPL ID: AX19513

QCG: \$86TTS-050505BC-86524

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.52	ug/Kg	5/6/05	5/6/05
EPA 8260B	Trichloroethene	40	6	0.87	ug/Kg	5/6/05	5/6/05
EPA 8260B	Vinyl Acetate	Not detected	61	1.2	ug/Kg	5/6/05	5/6/05
EPA 8260B	Vinyl chloride	Not detected	6	2.0	ug/Kg	5/6/05	5/6/05
EPA 8260B	Xylenes	Not detected	18	0.83	ug/Kg	5/6/05	5/6/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	104	52-149		%	5/6/05	5/6/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	85.4	65-135		%	5/6/05	5/6/05
EPA 8260B	Surrogate recovery: Toluene-d8	93.0	65-135		%	5/6/05	5/6/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.  
B = The analyte was found in a method blank, as well as in the sample.

Run #: 0505C29  
Instrument: Chico  
Sequence: C050501  
Dilution Factor: 1  
Initials: LF

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

A/ttn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-654

Sample Collection Date: 5/5/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47379

APPL ID: AX19513

QCG: S86TTD-050519BM-87284

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 18.0 Percent Moisture.)							
EPA 8260B-	cis-1,2-Dichloroethene	840	120	39	ug/Kg	5/19/05	5/19/05
EPA 8260B-	Surrogate recovery: 1,2-Dichloroethane	89.3	52-149		%	5/19/05	5/19/05
EPA 8260B-	Surrogate recovery: 4-Bromofluorobenz	87.8	65-135		%	5/19/05	5/19/05
EPA 8260B-	Surrogate recovery: Toluene-d8	97.5	65-135		%	5/19/05	5/19/05

Run #: 0519M12

Instrument: Max

Sequence: M050517

Dilution Factor: 200

Initials: LF

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47379

Sample ID: 86-WOPT-655

APPL ID: AX19514

Sample Collection Date: 5/5/05

QCG: \$86TTS-050505BC-86524

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 11.1 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	0.91	ug/Kg	5/6/05	5/6/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.4	ug/Kg	5/6/05	5/6/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.54	ug/Kg	5/6/05	5/6/05
EPA 8260B	1,1-Dichloroethane	Not detected	6	1.3	ug/Kg	5/6/05	5/6/05
EPA 8260B	1,1-Dichloroethene	2.1 J	6	0.89	ug/Kg	5/6/05	5/6/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.81	ug/Kg	5/6/05	5/6/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.70	ug/Kg	5/6/05	5/6/05
EPA 8260B	2-Butanone	Not detected	56	0.80	ug/Kg	5/6/05	5/6/05
EPA 8260B	2-Hexanone	Not detected	56	0.18	ug/Kg	5/6/05	5/6/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	56	1.0	ug/Kg	5/6/05	5/6/05
EPA 8260B	Acetone	25 B J	110	3.1	ug/Kg	5/6/05	5/6/05
EPA 8260B	Benzene	Not detected	6	0.71	ug/Kg	5/6/05	5/6/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.78	ug/Kg	5/6/05	5/6/05
EPA 8260B	Bromoform	Not detected	6	0.90	ug/Kg	5/6/05	5/6/05
EPA 8260B	Bromomethane	Not detected	11	1.8	ug/Kg	5/6/05	5/6/05
EPA 8260B	Carbon disulfide	Not detected	6	1.2	ug/Kg	5/6/05	5/6/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.90	ug/Kg	5/6/05	5/6/05
EPA 8260B	Chlorobenzene	Not detected	6	0.55	ug/Kg	5/6/05	5/6/05
EPA 8260B	Chloroethane	Not detected	6	1.7	ug/Kg	5/6/05	5/6/05
EPA 8260B	Chloroform	Not detected	6	1.6	ug/Kg	5/6/05	5/6/05
EPA 8260B	Chloromethane	Not detected	6	2.0	ug/Kg	5/6/05	5/6/05
EPA 8260B	cis-1,2-Dichloroethene	170	6	1.2	ug/Kg	5/6/05	5/6/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.53	ug/Kg	5/6/05	5/6/05
EPA 8260B	Dibromochloromethane	Not detected	6	0.96	ug/Kg	5/6/05	5/6/05
EPA 8260B	Ethylbenzene	Not detected	6	0.72	ug/Kg	5/6/05	5/6/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.0	ug/Kg	5/6/05	5/6/05
EPA 8260B	Methylene chloride	5.2 B J	56	5.2	ug/Kg	5/6/05	5/6/05
EPA 8260B	Styrene	Not detected	6	0.78	ug/Kg	5/6/05	5/6/05
EPA 8260B	Tetrachloroethene	61	6	0.61	ug/Kg	5/6/05	5/6/05
EPA 8260B	Toluene	Not detected	6	0.73	ug/Kg	5/6/05	5/6/05
EPA 8260B	trans-1,2-Dichloroethene	2.7 J	6	1.5	ug/Kg	5/6/05	5/6/05

J = Estimated value, below quantitation limit.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0505C30

Instrument: Chico

Sequence: C050501

Dilution Factor: 1

Initials: LF

Printed: 5/24/05 1:25:18 PM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-655

Sample Collection Date: 5/5/05

ARF: 47379

APPL ID: AX19514

QCG: S86TTS-050505BC-86524

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.48	ug/Kg	5/6/05	5/6/05
EPA 8260B	Trichloroethene	150	6	0.80	ug/Kg	5/6/05	5/6/05
EPA 8260B	Vinyl Acetate	Not detected	56	1.1	ug/Kg	5/6/05	5/6/05
EPA 8260B	Vinyl chloride	Not detected	6	1.9	ug/Kg	5/6/05	5/6/05
EPA 8260B	Xylenes	Not detected	17	0.76	ug/Kg	5/6/05	5/6/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	116	52-149		%	5/6/05	5/6/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	85.7	65-135		%	5/6/05	5/6/05
EPA 8260B	Surrogate recovery: Toluene-d8	88.2	65-135		%	5/6/05	5/6/05

J = Estimated value, below quantitation limit.  
B = The analyte was found in a method blank, as well as in the sample.

Run #: 0505C30  
Instrument: Chico  
Sequence: C050501  
Dilution Factor: 1  
Initials: LF

Printed: 5/24/05 1 25 18 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47379

Sample ID: 86-WOPT-656

APPL ID: AX19515

Sample Collection Date: 5/5/05

QCG: \$86TTS-050505BC-86524

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 19.7 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	1.0	ug/Kg	5/6/05	5/6/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.5	ug/Kg	5/6/05	5/6/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.60	ug/Kg	5/6/05	5/6/05
EPA 8260B	1,1-Dichloroethane	4.2 J	6	1.4	ug/Kg	5/6/05	5/6/05
EPA 8260B	1,1-Dichloroethene	6.9	6	0.98	ug/Kg	5/6/05	5/6/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.90	ug/Kg	5/6/05	5/6/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.77	ug/Kg	5/6/05	5/6/05
EPA 8260B	2-Butanone	Not detected	62	0.88	ug/Kg	5/6/05	5/6/05
EPA 8260B	2-Hexanone	Not detected	62	0.20	ug/Kg	5/6/05	5/6/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	62	1.2	ug/Kg	5/6/05	5/6/05
EPA 8260B	Acetone	30 B J	120	3.5	ug/Kg	5/6/05	5/6/05
EPA 8260B	Benzene	Not detected	6	0.78	ug/Kg	5/6/05	5/6/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.86	ug/Kg	5/6/05	5/6/05
EPA 8260B	Bromoform	Not detected	6	1.0	ug/Kg	5/6/05	5/6/05
EPA 8260B	Bromomethane	Not detected	12	2.0	ug/Kg	5/6/05	5/6/05
EPA 8260B	Carbon disulfide	Not detected	6	1.3	ug/Kg	5/6/05	5/6/05
EPA 8260B	Carbon tetrachloride	Not detected	6	1.0	ug/Kg	5/6/05	5/6/05
EPA 8260B	Chlorobenzene	Not detected	6	0.61	ug/Kg	5/6/05	5/6/05
EPA 8260B	Chloroethane	Not detected	6	1.9	ug/Kg	5/6/05	5/6/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	5/6/05	5/6/05
EPA 8260B	Chloromethane	Not detected	6	2.3	ug/Kg	5/6/05	5/6/05
EPA 8260B	cis-1,2-Dichloroethene	320	6	1.3	ug/Kg	5/6/05	5/6/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.59	ug/Kg	5/6/05	5/6/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.1	ug/Kg	5/6/05	5/6/05
EPA 8260B	Ethylbenzene	Not detected	6	0.80	ug/Kg	5/6/05	5/6/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	5/6/05	5/6/05
EPA 8260B	Methylene chloride	Not detected B	62	5.7	ug/Kg	5/6/05	5/6/05
EPA 8260B	Styrene	Not detected	6	0.86	ug/Kg	5/6/05	5/6/05
EPA 8260B	Tetrachloroethene	23	6	0.67	ug/Kg	5/6/05	5/6/05
EPA 8260B	Toluene	Not detected	6	0.81	ug/Kg	5/6/05	5/6/05
EPA 8260B	trans-1,2-Dichloroethene	12	6	1.7	ug/Kg	5/6/05	5/6/05

J = Estimated value, below quantitation limit.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0505C31  
Instrument: Chico  
Sequence: C050501  
Dilution Factor: 1  
Initials: LF



# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47379

Sample ID: 86-WOPT-656

APPL ID: AX19515

Sample Collection Date: 5/5/05

QCG: \$86TTS-050505BC-86524

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.54	ug/Kg	5/6/05	5/6/05
EPA 8260B	Trichloroethene	150	6	0.88	ug/Kg	5/6/05	5/6/05
EPA 8260B	Vinyl Acetate	Not detected	62	1.2	ug/Kg	5/6/05	5/6/05
EPA 8260B	Vinyl chloride	Not detected	6	2.1	ug/Kg	5/6/05	5/6/05
EPA 8260B	Xylenes	Not detected	19	0.85	ug/Kg	5/6/05	5/6/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	110	52-149		%	5/6/05	5/6/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	85.7	65-135		%	5/6/05	5/6/05
EPA 8260B	Surrogate recovery: Toluene-d8	88.9	65-135		%	5/6/05	5/6/05

J = Estimated value, below quantitation limit.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0505C31  
Instrument: Chico  
Sequence: C050501  
Dilution Factor: 1  
Initials: LF

Printed: 5/24/05 1:25:18 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47379

Sample ID: 86-WOPT-657

APPL ID: AX19516

Sample Collection Date: 5/5/05

QCG: S86TTS-050505BC-86524

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 12.3 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	0.92	ug/Kg	5/6/05	5/6/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.4	ug/Kg	5/6/05	5/6/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.55	ug/Kg	5/6/05	5/6/05
EPA 8260B	1,1-Dichloroethane	Not detected	6	1.3	ug/Kg	5/6/05	5/6/05
EPA 8260B	1,1-Dichloroethene	1.8 J	6	0.90	ug/Kg	5/6/05	5/6/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.82	ug/Kg	5/6/05	5/6/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.71	ug/Kg	5/6/05	5/6/05
EPA 8260B	2-Butanone	Not detected	57	0.81	ug/Kg	5/6/05	5/6/05
EPA 8260B	2-Hexanone	Not detected	57	0.18	ug/Kg	5/6/05	5/6/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	57	1.1	ug/Kg	5/6/05	5/6/05
EPA 8260B	Acetone	39 B J	110	3.2	ug/Kg	5/6/05	5/6/05
EPA 8260B	Benzene	Not detected	6	0.72	ug/Kg	5/6/05	5/6/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.79	ug/Kg	5/6/05	5/6/05
EPA 8260B	Bromoform	Not detected	6	0.91	ug/Kg	5/6/05	5/6/05
EPA 8260B	Bromomethane	Not detected	11	1.8	ug/Kg	5/6/05	5/6/05
EPA 8260B	Carbon disulfide	Not detected	6	1.2	ug/Kg	5/6/05	5/6/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.91	ug/Kg	5/6/05	5/6/05
EPA 8260B	Chlorobenzene	Not detected	6	0.56	ug/Kg	5/6/05	5/6/05
EPA 8260B	Chloroethane	Not detected	6	1.8	ug/Kg	5/6/05	5/6/05
EPA 8260B	Chloroform	Not detected	6	1.6	ug/Kg	5/6/05	5/6/05
EPA 8260B	Chloromethane	Not detected	6	2.1	ug/Kg	5/6/05	5/6/05
EPA 8260B	cis-1,2-Dichloroethene	11	6	1.2	ug/Kg	5/6/05	5/6/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.54	ug/Kg	5/6/05	5/6/05
EPA 8260B	Dibromochloromethane	Not detected	6	0.97	ug/Kg	5/6/05	5/6/05
EPA 8260B	Ethylbenzene	Not detected	6	0.73	ug/Kg	5/6/05	5/6/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.0	ug/Kg	5/6/05	5/6/05
EPA 8260B	Methylene chloride	5.8 B J	57	5.2	ug/Kg	5/6/05	5/6/05
EPA 8260B	Styrene	Not detected	6	0.79	ug/Kg	5/6/05	5/6/05
EPA 8260B	Tetrachloroethene	1.4 J	6	0.62	ug/Kg	5/6/05	5/6/05
EPA 8260B	Toluene	Not detected	6	0.74	ug/Kg	5/6/05	5/6/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.5	ug/Kg	5/6/05	5/6/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0505C32

Instrument: Chico

Sequence: C050501

Dilution Factor: 1

Initials: LF

Printed: 5/24/05 1:25:18 PM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bidg 88 Moffett Airfield

Sample ID: **86-WOPT-657**

Sample Collection Date: 5/5/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47379

APPL ID: **AX19516**

QCG: \$86TTS-050505BC-86524

Method	Analyte	Result	FQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.49	ug/Kg	5/6/05	5/6/05
EPA 8260B	Trichloroethene	460 E	6	0.81	ug/Kg	5/6/05	5/6/05
EPA 8260B	Vinyl Acetate	Not detected	57	1.1	ug/Kg	5/6/05	5/6/05
EPA 8260B	Vinyl chloride	Not detected	6	1.9	ug/Kg	5/6/05	5/6/05
EPA 8260B	Xylenes	Not detected	17	0.78	ug/Kg	5/6/05	5/6/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	114	52-149		%	5/6/05	5/6/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	84.9	65-135		%	5/6/05	5/6/05
EPA 8260B	Surrogate recovery: Toluene-d8	90.1	65-135		%	5/6/05	5/6/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.  
B = The analyte was found in a method blank, as well as in the sample.

Run #: 0505C32  
Instrument: Chico  
Sequence: C050501  
Dilution Factor: 1  
Initials: LF

Printed 5/24/05 1:25:18 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-657

Sample Collection Date: 5/5/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47379

APPL ID: AX19516

QCG: \$86TTD-050519BM-87234

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 12.3 Percent Moisture.)							
EPA 8260B-	Trichloroethene	600	29	9.1	ug/Kg	5/19/05	5/19/05
EPA 8260B-	Surrogate recovery: 1,2-Dichloroethane	87.0	52-149		%	5/19/05	5/19/05
EPA 8260B-	Surrogate recovery: 4-Bromofluorobenz	88.4	65-135		%	5/19/05	5/19/05
EPA 8260B-	Surrogate recovery: Toluene-d8	100	65-135		%	5/19/05	5/19/05

Run #: 0519M13  
Instrument: Max  
Sequence: M050517  
Dilution Factor: 50  
Initials: LF

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47379

Sample ID: 86-WOPT-658

APPL ID: AX19517

Sample Collection Date: 5/5/05

QCG: S86TTS-050505BC-86524

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 13.6 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	0.94	ug/Kg	5/6/05	5/6/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.4	ug/Kg	5/6/05	5/6/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.56	ug/Kg	5/6/05	5/6/05
EPA 8260B	1,1-Dichloroethane	Not detected	6	1.3	ug/Kg	5/6/05	5/6/05
EPA 8260B	1,1-Dichloroethene	1.5 J	6	0.91	ug/Kg	5/6/05	5/6/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.83	ug/Kg	5/6/05	5/6/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.72	ug/Kg	5/6/05	5/6/05
EPA 8260B	2-Butanone	Not detected	58	0.82	ug/Kg	5/6/05	5/6/05
EPA 8260B	2-Hexanone	Not detected	58	0.19	ug/Kg	5/6/05	5/6/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	58	1.1	ug/Kg	5/6/05	5/6/05
EPA 8260B	Acetone	32 B J	120	3.2	ug/Kg	5/6/05	5/6/05
EPA 8260B	Benzene	Not detected	6	0.73	ug/Kg	5/6/05	5/6/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.80	ug/Kg	5/6/05	5/6/05
EPA 8260B	Bromoform	Not detected	6	0.93	ug/Kg	5/6/05	5/6/05
EPA 8260B	Bromomethane	Not detected	12	1.8	ug/Kg	5/6/05	5/6/05
EPA 8260B	Carbon disulfide	Not detected	6	1.2	ug/Kg	5/6/05	5/6/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.93	ug/Kg	5/6/05	5/6/05
EPA 8260B	Chlorobenzene	Not detected	6	0.57	ug/Kg	5/6/05	5/6/05
EPA 8260B	Chloroethane	Not detected	6	1.8	ug/Kg	5/6/05	5/6/05
EPA 8260B	Chloroform	Not detected	6	1.7	ug/Kg	5/6/05	5/6/05
EPA 8260B	Chloromethane	Not detected	6	2.1	ug/Kg	5/6/05	5/6/05
EPA 8260B	cis-1,2-Dichloroethene	5.6 J	6	1.2	ug/Kg	5/6/05	5/6/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.54	ug/Kg	5/6/05	5/6/05
EPA 8260B	Dibromochloromethane	Not detected	6	0.98	ug/Kg	5/6/05	5/6/05
EPA 8260B	Ethylbenzene	Not detected	6	0.74	ug/Kg	5/6/05	5/6/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.0	ug/Kg	5/6/05	5/6/05
EPA 8260B	Methylene chloride	5.8 B J	58	5.3	ug/Kg	5/6/05	5/6/05
EPA 8260B	Styrene	Not detected	6	0.80	ug/Kg	5/6/05	5/6/05
EPA 8260B	Tetrachloroethene	1.1 J	6	0.63	ug/Kg	5/6/05	5/6/05
EPA 8260B	Toluene	Not detected	6	0.75	ug/Kg	5/6/05	5/6/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.6	ug/Kg	5/6/05	5/6/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0505C33

Instrument: Chico

Sequence: C050501

Dilution Factor: 1

Initials: LF

Printed: 5/24/05 1:25:18 PM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-658

Sample Collection Date: 5/5/05

ARF: 47379

APPL ID: AX19517

QCG: S86TTS-050505BC-86524

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.50	ug/Kg	5/6/05	5/6/05
EPA 8260B	Trichloroethene	490 E	6	0.82	ug/Kg	5/6/05	5/6/05
EPA 8260B	Vinyl Acetate	Not detected	58	1.2	ug/Kg	5/6/05	5/6/05
EPA 8260B	Vinyl chloride	Not detected	6	1.9	ug/Kg	5/6/05	5/6/05
EPA 8260B	Xylenes	Not detected	17	0.79	ug/Kg	5/6/05	5/6/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	107	52-149		%	5/6/05	5/6/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	84.9	65-135		%	5/6/05	5/6/05
EPA 8260B	Surrogate recovery: Toluene-d8	96.4	65-135		%	5/6/05	5/6/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.  
B = The analyte was found in a method blank, as well as in the sample.

Run #: 0505C33  
Instrument: Chico  
Sequence: C050501  
Dilution Factor: 1  
Initials: LF

Printed: 5/25/05 9 58:43 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: **86-WOPT-653**

Sample Collection Date: 5/5/05

ARF: 47379

APPL ID: **AX19517**

QCG: \$86TTD-050519B/A-87284

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 13.6 Percent Moisture.)							
EPA 8260B-	Trichloroethene	200	29	9.3	ug/Kg	5/19/05	5/19/05
EPA 8260B-	Surrogate recovery: 1,2-Dichloroethane	86.9	52-149		%	5/19/05	5/19/05
EPA 8260B-	Surrogate recovery: 4-Bromofluorobenz	87.7	65-135		%	5/19/05	5/19/05
EPA 8260B-	Surrogate recovery: Toluene-d8	99.5	65-135		%	5/19/05	5/19/05

Run #: 0519M14  
Instrument: Max  
Sequence: M050517  
Dilution Factor: 50  
Initials: LF

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47379

Sample ID: 86-WOPT-659

APPL ID: AX19518

Sample Collection Date: 5/5/05

QCG: \$86TTW-050517AM-8725

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	5/17/05	5/17/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	5/17/05	5/17/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	5/17/05	5/17/05
EPA 8260B	1,1-Dichloroethane	Not detected	0.5	0.19	ug/L	5/17/05	5/17/05
EPA 8260B	1,1-Dichloroethene	Not detected	0.5	0.30	ug/L	5/17/05	5/17/05
EPA 8260B	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	5/17/05	5/17/05
EPA 8260B	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	5/17/05	5/17/05
EPA 8260B	2-Butanone	Not detected	5	0.6	ug/L	5/17/05	5/17/05
EPA 8260B	2-Hexanone	Not detected	5	0.92	ug/L	5/17/05	5/17/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	5/17/05	5/17/05
EPA 8260B	Acetone	Not detected	5	0.95	ug/L	5/17/05	5/17/05
EPA 8260B	Benzene	Not detected	0.5	0.16	ug/L	5/17/05	5/17/05
EPA 8260B	Bromodichloromethane	Not detected	0.5	0.14	ug/L	5/17/05	5/17/05
EPA 8260B	Bromoform	Not detected	0.5	0.14	ug/L	5/17/05	5/17/05
EPA 8260B	Bromomethane	Not detected	1	0.24	ug/L	5/17/05	5/17/05
EPA 8260B	Carbon disulfide	Not detected	0.5	0.2	ug/L	5/17/05	5/17/05
EPA 8260B	Carbon tetrachloride	Not detected	0.5	0.10	ug/L	5/17/05	5/17/05
EPA 8260B	Chlorobenzene	Not detected	0.5	0.21	ug/L	5/17/05	5/17/05
EPA 8260B	Chloroethane	Not detected	0.5	0.21	ug/L	5/17/05	5/17/05
EPA 8260B	Chloroform	0.21 J	0.5	0.16	ug/L	5/17/05	5/17/05
EPA 8260B	Chloromethane	Not detected	0.5	0.31	ug/L	5/17/05	5/17/05
EPA 8260B	cis-1,2-Dichloroethene	Not detected	0.5	0.16	ug/L	5/17/05	5/17/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	5/17/05	5/17/05
EPA 8260B	Dibromochloromethane	Not detected	0.5	0.19	ug/L	5/17/05	5/17/05
EPA 8260B	Ethylbenzene	Not detected	0.5	0.23	ug/L	5/17/05	5/17/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	5/17/05	5/17/05
EPA 8260B	Methylene chloride	Not detected	5	0.35	ug/L	5/17/05	5/17/05
EPA 8260B	Styrene	Not detected	0.5	0.25	ug/L	5/17/05	5/17/05
EPA 8260B	Tetrachloroethene	Not detected	0.5	0.15	ug/L	5/17/05	5/17/05
EPA 8260B	Toluene	Not detected	0.5	0.17	ug/L	5/17/05	5/17/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	0.5	0.19	ug/L	5/17/05	5/17/05

J = Estimated value, below quantitation limit.

Run #: 0517M15  
Instrument: Max  
Sequence: M050517  
Dilution Factor: 1  
Initials: LF

Printed: 5/24/05 1:25:18 PM  
APPL-F1-SC-MCRes-MCPQL-REG MDLs



# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-659

Sample Collection Date: 5/5/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47379

APPL ID: AX19518

QCG: \$86TTW-050517AM-8725

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	5/17/05	5/17/05
EPA 8260B	Trichloroethene	Not detected	0.5	0.16	ug/L	5/17/05	5/17/05
EPA 8260B	Vinyl Acetate	Not detected	5	0.31	ug/L	5/17/05	5/17/05
EPA 8260B	Vinyl chloride	Not detected	0.5	0.23	ug/L	5/17/05	5/17/05
EPA 8260B	Xylenes	Not detected	1.5	0.19	ug/L	5/17/05	5/17/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	100	62-139		%	5/17/05	5/17/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	91.7	75-125		%	5/17/05	5/17/05
EPA 8260B	Surrogate recovery: Toluene-d8	98.2	75-125		%	5/17/05	5/17/05

J = Estimated value, below quantitation limit.

Run #: 0517M15  
Instrument: Max  
Sequence: M050517  
Dilution Factor: 1  
Initials: LF

Printed: 5/24/05 1:25:18 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Blenkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47379

Sample ID: 86-WOPT-647

APPL ID: AX19506

Sample Collection Date: 5/5/05

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	290	25	0.14	mg/L	5/10/05	5/20/05
6010B	Calcium (Ca)	257 E	5	0.0272	mg/L	5/10/05	5/20/05
6010B	Iron (Fe)	19.1	0.1	0.0258	mg/L	5/10/05	5/20/05
6010B	Magnesium (Mg)	96.5	5	0.0129	mg/L	5/10/05	5/20/05
6010B	Potassium (K)	6.3	5	0.0995	mg/L	5/10/05	5/20/05
6010B	Sodium (Na)	41.8	5	0.1111	mg/L	5/10/05	5/20/05

E = The reported value exceeds linear range.

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47379

Sample ID: 86-WOPT-648

APPL ID: AX19507

Sample Collection Date: 5/5/05

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	334	25	0.14	mg/L	5/10/05	5/20/05
6010B	Calcium (Ca)	305 E	5	0.0272	mg/L	5/10/05	5/20/05
6010B	Iron (Fe)	131	0.1	0.0258	mg/L	5/10/05	5/20/05
6010B	Magnesium (Mg)	82.7	5	0.0129	mg/L	5/10/05	5/20/05
6010B	Potassium (K)	4.8 J	5	0.0995	mg/L	5/10/05	5/20/05
6010B	Sodium (Na)	38.5	5	0.1111	mg/L	5/10/05	5/20/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4263 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47379

Sample ID: 86-WOPT-649

APPL ID: AX19508

Sample Collection Date: 5/5/05

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	526	50	0.27	mg/L	5/10/05	5/20/05
6010B	Calcium (Ca)	449 E	5	0.0272	mg/L	5/10/05	5/20/05
6010B	Iron (Fe)	14.7	0.1	0.0258	mg/L	5/10/05	5/20/05
6010B	Magnesium (Mg)	87.4	5	0.0129	mg/L	5/10/05	5/20/05
6010B	Potassium (K)	15.8	5	0.0995	mg/L	5/10/05	5/20/05
6010B	Sodium (Na)	42.0	5	0.1111	mg/L	5/10/05	5/20/05

E = The reported value exceeds linear range.

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47379

Sample ID: 86-WOPT-650

APPL ID: AX19509

Sample Collection Date: 5/5/05

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	363	25	0.14	mg/L	5/10/05	5/20/05
6010B	Calcium (Ca)	300 E	5	0.0272	mg/L	5/10/05	5/20/05
6010B	Iron (Fe)	18.3	0.1	0.0258	mg/L	5/10/05	5/20/05
6010B	Magnesium (Mg)	59.0	5	0.0129	mg/L	5/10/05	5/20/05
6010B	Potassium (K)	13.4	5	0.0995	mg/L	5/10/05	5/20/05
6010B	Sodium (Na)	37.4	5	0.1111	mg/L	5/10/05	5/20/05

E = The reported value exceeds linear range.

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-651

Sample Collection Date: 5/5/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47379

APPL ID: AX19510

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	338	25	0.14	mg/L	5/10/05	5/20/05
6010B	Calcium (Ca)	324 E	5	0.0272	mg/L	5/10/05	5/20/05
6010B	Iron (Fe)	21.8	0.1	0.0258	mg/L	5/10/05	5/20/05
6010B	Magnesium (Mg)	64.7	5	0.0129	mg/L	5/10/05	5/20/05
6010B	Potassium (K)	13.2	5	0.0995	mg/L	5/10/05	5/20/05
6010B	Sodium (Na)	37.3	5	0.1111	mg/L	5/10/05	5/20/05

E = The reported value exceeds linear range.

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47379

Sample ID: 86-WOPT-652

APPL ID: AX19511

Sample Collection Date: 5/5/05

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	612	50	0.27	mg/L	5/10/05	5/20/05
6010B	Calcium (Ca)	552 E	5	0.0272	mg/L	5/10/05	5/20/05
6010B	Iron (Fe)	6.3	0.1	0.0258	mg/L	5/10/05	5/20/05
6010B	Magnesium (Mg)	135	10	0.026	mg/L	5/10/05	5/20/05
6010B	Magnesium (Mg)	122 E	5	0.0129	mg/L	5/10/05	5/20/05
6010B	Potassium (K)	12.9	5	0.0995	mg/L	5/10/05	5/20/05
6010B	Sodium (Na)	37.6	5	0.1111	mg/L	5/10/05	5/20/05

E = The reported value exceeds linear range.

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2L-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-647

Sample Collection Date: 5/5/05

APPL ID: AX19506

ARF: 47379

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	43000	1000	80	ug/L	5/6/05	5/6/05
EPA 300.0	Nitrate	11700	200	15	ug/L	5/6/05	5/6/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	5/6/05	5/6/05
EPA 300.0	Sulfate	487000 E	1000	90	ug/L	5/6/05	5/6/05
EPA 300.0	Sulfate	416000	5000	450	ug/L	5/6/05	5/6/05
EPA 310.1	Bicarbonate	401	5	0.787	mg/L	5/16/05	5/16/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	5/16/05	5/16/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs



## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 28 Moffett Airfield

Sample ID: 86-WOPT-648

Sample Collection Date: 5/5/05

APPL ID: AX19507

ARF: 47379

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	47000	1000	80	ug/L	5/6/05	5/6/05
EPA 300.0	Nitrate	Not detected	200	15	ug/L	5/6/05	5/6/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	5/6/05	5/6/05
EPA 300.0	Sulfate	374000 E	1000	90	ug/L	5/6/05	5/6/05
EPA 300.0	Sulfate	315000	5000	450	ug/L	5/6/05	5/6/05
EPA 310.1	Bicarbonate	432	5	0.787	mg/L	5/16/05	5/16/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	5/16/05	5/16/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-649

Sample Collection Date: 5/5/05

APPL ID: AX19508

ARF: 47379

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	42600	1000	80	ug/L	5/6/05	5/6/05
EPA 300.0	Nitrate	4100	200	15	ug/L	5/6/05	5/6/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	5/6/05	5/6/05
EPA 300.0	Sulfate	301000 E	1000	90	ug/L	5/6/05	5/6/05
EPA 300.0	Sulfate	251000	5000	450	ug/L	5/6/05	5/6/05
EPA 310.1	Bicarbonate	423	5	0.787	mg/L	5/16/05	5/16/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	5/16/05	5/16/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-650

Sample Collection Date: 5/5/05

APPL ID: AX19509

ARF: 47379

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	37800	1000	80	ug/L	5/6/05	5/6/05
EPA 300.0	Nitrate	7830	200	15	ug/L	5/6/05	5/6/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	5/6/05	5/6/05
EPA 300.0	Sulfate	248000 E	1000	90	ug/L	5/6/05	5/6/05
EPA 300.0	Sulfate	208000	5000	450	ug/L	5/6/05	5/6/05
EPA 310.1	Bicarbonate	296	5	0.787	mg/L	5/16/05	5/16/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	5/16/05	5/16/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-651

Sample Collection Date: 5/5/05

APPL ID: AX19510

ARF: 47379

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 303.0	Chloride	37700	1000	80	ug/L	5/6/05	5/6/05
EPA 300.0	Nitrate	7780	200	15	ug/L	5/6/05	5/6/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	5/6/05	5/6/05
EPA 300.0	Sulfate	249000 E	1000	90	ug/L	5/6/05	5/6/05
EPA 300.0	Sulfate	206000	5000	450	ug/L	5/6/05	5/6/05
EPA 310.1	Bicarbonate	296	5	0.787	mg/L	5/16/05	5/16/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	5/16/05	5/16/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-652

Sample Collection Date: 5/5/05

APPL ID: AX19511

ARF: 47379

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	36400	1000	80	ug/L	5/6/05	5/6/05
EPA 300.0	Nitrate	8260	200	15	ug/L	5/6/05	5/6/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	5/6/05	5/6/05
EPA 300.0	Sulfate	161000 E	1000	90	ug/L	5/6/05	5/6/05
EPA 300.0	Sulfate	137000	5000	450	ug/L	5/6/05	5/6/05
EPA 310.1	Bicarbonate	264	5	0.787	mg/L	5/16/05	5/16/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	5/16/05	5/16/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-653

Sample Collection Date: 5/5/05

APPL ID: AX19512

ARF: 47379

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 22.9 Percent Moisture.)							
CLP MOIST	Moisture	22.9	2.0		%	5/6/05	5/6/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield  
Sample ID: 86-WOPT-654  
Sample Collection Date: 5/5/05

APPL ID: AX19513  
ARF: 47379

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 18.0 Percent Moisture.)							
CLP MOIST	Moisture	18.0	2.0		%	5/6/05	5/6/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

# Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield  
Sample ID: 86-WOPT-655  
Sample Collection Date: 5/5/05

APPL ID: AX19514  
ARF: 47379

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 11.1 Percent Moisture.)							
CLP MOIST	Moisture	11.1	2.0		%	5/6/05	5/6/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs



## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield  
Sample ID: 86-WOPT-656  
Sample Collection Date: 5/5/05

APPL ID: AX19515  
ARF: 47379

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 19.7 Percent Moisture.)							
CLP MOIST	Moisture	19.7	2.0		%	5/6/05	5/6/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-657**

Sample Collection Date: 5/5/05

**APPL ID: AX19516**

ARF: 47379

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 12.3 Percent Moisture.)							
CLP MOIST	Moisture	12.3	2.0		%	5/6/05	5/6/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-658

Sample Collection Date: 5/5/05

APPL ID: AX19517

ARF: 47379

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 13.6 Percent Moisture.)							
CLP MOIST	Moisture	13.6	2.0		%	5/6/05	5/6/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-659

Sample Collection Date: 5/5/05

APPL ID: AX19518

ARF: 47379

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
SW846 9060	Total Organic Carbon	0.61	0.5	0.129	mg/L	5/23/05	5/23/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

May 24, 2005

Service Request No: K2503318

Robert Wise  
APPL, Inc.  
4203 W. Swift Avenue  
Fresno, CA 93722

**RE: 47379**

Dear Robert:

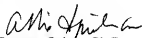
Enclosed are the results of the sample(s) submitted to our laboratory on May 7, 2005. For your reference, these analyses have been assigned our service request number K2503318.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3376.

Respectfully submitted,

**Columbia Analytical Services, Inc.**

  
Gregory Salata, Ph.D.  
Project Chemist

GS/jeh

Page 1 of 15

COLUMBIA ANALYTICAL SERVICES, INC.

Client: APL, Inc.  
Project: 47379  
Sample Matrix: Soil

Service Request No.: E2567318  
Date Received: 5/7/05

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier III validation deliverables including summary forms and all of the associated raw data for each of the analyses. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Six soil samples were received for analysis at Columbia Analytical Services on 5/7/05. No discrepancies were noted upon initial sample inspection. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

General Chemistry Parameters

No anomalies associated with the analysis of these samples were observed.

Approved by

*ari April*

Date

*5/14/05*

00005

# COLUMBIA ANALYTICAL SERVICES, INC.

## Analytical Report

Client : Agriculture & Priority Pollutants Labs  
 Project Name : NA  
 Project Number : 47379  
 Sample Matrix : SOIL

Service Request : K2503318  
 Date Collected : 05/05/05  
 Date Received : 05/07/05

## Carbon, Total Organic

Analysis Method : Walkley-Black  
 Test Notes :

Units : mg/Kg (ppm)  
 Basis : Dry

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
86-WOPT-653	K2503318-001	2000	900	1	05/23/05	2380	
86-WOPT-654	K2503318-002	2000	900	1	05/23/05	5380	
86-WOPT-655	K2503318-003	2000	900	1	05/23/05	2320	
86-WOPT-656	K2503318-004	2000	900	1	05/23/05	3400	
86-WOPT-657	K2503318-005	2000	900	1	05/23/05	2270	
86-WOPT-658	K2503318-006	2000	900	1	05/23/05	2550	
Method Blank	K2503318-MB	2000	900	1	05/23/05	ND	

10013

**Laboratory Data Consultants, Inc.**  
**Data Validation Report**

**Project/Site Name:** Moffett Air Field, Building 88, CTO 86  
**Collection Date:** May 5, 2005  
**LDC Report Date:** June 2, 2005  
**Matrix:** Water  
**Parameters:** Volatiles  
**Validation Level:** EPA Level III & IV  
**Laboratory:** APPL, Inc.  
**Sample Delivery Group (SDG):** 47379

**Sample Identification**

86-WOPT-646  
86-WOPT-647\*\*  
86-WOPT-647DL\*\*  
86-WOPT-648  
86-WOPT-648DL  
86-WOPT-649  
86-WOPT-649DL  
86-WOPT-650  
86-WOPT-650DL  
86-WOPT-651\*\*  
86-WOPT-651DL\*\*  
86-WOPT-652  
86-WOPT-652DL

\*\*Indicates sample underwent EPA Level IV review



## Introduction

This data review covers 13 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Contract Laboratory Program Statement of Work (SOW) OLM04.2 for Volatiles.

This review follows USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999); the following subsections correlate to the above guidelines.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 30.0% for all compounds with the following exceptions:

Data	Compound	%RSD	Associated Samples	Flag	A or P
5/3/05	Acetone	64	86-WOPT-646 86-WOPT-647** 86-WOPT-648 86-WOPT-649 86-WOPT-650 86-WOPT-651** 86-WOPT-652 050506W	J (all detects) UJ (all non-detects)	A

Average relative response factors (RRF) for all volatile target compounds and system monitoring compounds were within validation criteria.

## IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 25.0% .

All of the continuing calibration RRF values were within validation criteria.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Analysis Date	Compound TIC (RT in minutes)	Concentration	Associated Samples
05050BW	5/6/05	Acetone	10 ug/L	86-WOPT-646 86-WOPT-647** 86-WOPT-648 86-WOPT-649 86-WOPT-650 86-WOPT-651** 86-WOPT-652

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
86-WOPT-646	Acetone	15 ug/L	15U ug/L
86-WOPT-647**	Acetone	11 ug/L	11U ug/L
86-WOPT-648	Acetone	16 ug/L	16U ug/L
86-WOPT-649	Acetone	14 ug/L	14U ug/L
86-WOPT-650	Acetone	10 ug/L	10U ug/L
86-WOPT-651**	Acetone	15 ug/L	15U ug/L
86-WOPT-652	Acetone	9.0 ug/L	9.0U ug/L

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the SOW. All surrogate recoveries (%R) were within QC limits.

## VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

### VIII. Laboratory Control Samples (LCS)

Although laboratory control samples were not required by the method, laboratory control samples were reported by the laboratory. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

### IX. Regional Quality Assurance and Quality Control

Not applicable.

### X. Internal Standards

All internal standard areas and retention times were within QC limits.

### XI. Target Compound Identifications

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

### XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
86-WOPT-647** 86-WOPT-649	cis-1,2-Dichloroethene Tetrachloroethene Trichloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects) J (all detects)	A
86-WOPT-648	cis-1,2-Dichloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	A
86-WOPT-650 86-WOPT-651** 86-WOPT-652	Trichloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	A

Raw data were not evaluated for the samples reviewed by Level III criteria.

### XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

#### XIV. System Performance

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

#### XV. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

#### XVI. Field Duplicates

Samples 86-WOPT-650 and 86-WOPT-651\*\* and samples 86-WOPT-650DL and 86-WOPT-651DL\*\* were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	86-WOPT-650	86-WOPT-651**	
1,1,1-Trichloroethane	1.6	1.6	0
1,1,2-Trichloro-1,2,2-trifluoroethane	89	73	20
1,1,2-Trichloroethane	0.43	0.5U	Not calculable
1,1-Dichloroethane	8.5	7.6	11
1,1-Dichloroethene	32	29	10
Acetone	10	15	40
Chloroform	0.39	0.34	14
cis-1,2-Dichloroethene	110	98	12
Tetrachloroethene	2.7	2.6	4
trans-1,2-Dichloroethene	1.3	1.1	17
Trichloroethene	1500	1500	0
Vinyl chloride	0.72	0.61	17

Compound	Concentration (ug/L)		RPD
	86-WOPT-650DL	86-WOPT-851DL**	
Trichloroethene	3600	2400	40

## XVII. Field Blanks

Sample 86-WOPT-646 was identified as a trip blank. No volatile contaminants were found in this blank with the following exceptions:

Trip Blank ID	Compound	Concentration (ug/L)
86-WOPT-646	Acetone	15

**Moffett Air Field, Building 88, CTO 86**  
**Volatiles - Data Qualification Summary - SDG 47379**

SDG	Sample	Compound	Flag	A or P	Reason
47379	86-WOPT-646 86-WOPT-647** 86-WOPT-648 86-WOPT-649 86-WOPT-650 86-WOPT-651** 86-WOPT-652	Acetone	J (all detects) UJ (all non-detects)	A	Initial calibration (%RSD)
47379	86-WOPT-647** 86-WOPT-649	cis-1,2-Dichloroethene Tetrachloroethene Trichloroethene	J (all detects) J (all detects) J (all detects)	A	Compound quantitation and CRLs
47379	86-WOPT-648	cis-1,2-Dichloroethene	J (all detects)	A	Compound quantitation and CRLs
47379	86-WOPT-650 86-WOPT-651** 86-WOPT-652	Trichloroethene	J (all detects)	A	Compound quantitation and CRLs

**Moffett Air Field, Building 88, CTO 86**  
**Volatiles - Laboratory Blank Data Qualification Summary - SDG 47379**

SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P
47379	86-WOPT-646	Acetone	15U ug/L	A
47379	86-WOPT-647**	Acetone	11U ug/L	A
47379	86-WOPT-648	Acetone	16U ug/L	A
47379	86-WOPT-649	Acetone	14U ug/L	A
47379	86-WOPT-650	Acetone	10U ug/L	A
47379	86-WOPT-651**	Acetone	15U ug/L	A
47379	86-WOPT-652	Acetone	9.0U ug/L	A

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Air Field, Building 88, CTO 86

**Collection Date:** May 5, 2005

**LDC Report Date:** June 2, 2005

**Matrix:** Soil/Water

**Parameters:** Volatiles

**Validation Level:** EPA Level III & IV

**Laboratory:** APPL, Inc.

**Sample Delivery Group (SDG):** 47379

**Sample Identification**

86-WOPT-653  
86-WOPT-653DL  
86-WOPT-654  
86-WOPT-654DL  
86-WOPT-655\*\*  
86-WOPT-656  
86-WOPT-657  
86-WOPT-657DL  
86-WOPT-658\*\*  
86-WOPT-658DL\*\*  
86-WOPT-659

\*\*Indicates sample underwent EPA Level IV review



## Introduction

This data review covers 10 soil samples and one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 15.0% for each individual compound and less than or equal to 30.0% for calibration check compounds (CCCs).

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination ( $r^2$ ) was greater than or equal to 0.990.

Average relative response factors (RRF) for all system performance check compounds (SPCCs) were within method and validation criteria.

## IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 20.0% for all compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
5/1/05	Acetone	39	86-WOPT-653	J (all detects)	A
			86-WOPT-654	UJ (all non-detects)	
	Methylene chloride	33	86-WOPT-655**	J (all detects)	
			86-WOPT-656	UJ (all non-detects)	
			86-WOPT-657		
			86-WOPT-658**		
			050506S		

All of the continuing calibration RRF values for all system performance check compounds (SPCCs) were within method and validation criteria.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Analysis Date	Compound TIC (RT in minutes)	Concentration	Associated Samples
050506S	5/6/05	Acetone Methylene chloride	20 ug/Kg 7.0 ug/Kg	86-WOPT-653 86-WOPT-654 86-WOPT-655** 86-WOPT-656 86-WOPT-657 86-WOPT-658**

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (> 10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
86-WOPT-653	Acetone Methylene chloride	46 ug/Kg 7.5 ug/Kg	130U ug/Kg 65U ug/Kg
86-WOPT-654	Acetone Methylene chloride	42 ug/Kg 6.6 ug/Kg	120U ug/Kg 61U ug/Kg
86-WOPT-655**	Acetone Methylene chloride	25 ug/Kg 5.2 ug/Kg	110U ug/Kg 56U ug/Kg
86-WOPT-656	Acetone	30 ug/Kg	120U ug/Kg
86-WOPT-657	Acetone Methylene chloride	39 ug/Kg 5.8 ug/Kg	110U ug/Kg 57U ug/Kg
86-WOPT-658**	Acetone Methylene chloride	32 ug/Kg 5.8 ug/Kg	120U ug/Kg 58U ug/Kg

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## IX. Regional Quality Assurance and Quality Control

Not applicable.

## X. Internal Standards

All internal standard areas and retention times were within QC limits with the following exceptions:

Sample	Internal Standards	Area (Limits)	Compound	Flag	A or P
86-WOPT-653	1,4-Dichlorobenzene-d4	69046 (100982-403926)	4-Methyl-2-pentanone 1,1,2,2-Tetrachloroethane	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A

## XI. Target Compound Identifications

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
86-WOPT-653	cis-1,2-Dichloroethene Tetrachloroethene Trichloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects) J (all detects)	A
86-WOPT-654	cis-1,2-Dichloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	A

Sample	Compound	Finding	Criteria	Flag	A or P
86-WOPT-657 86-WOPT-658**	Trichloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	A

Raw data were not evaluated for the samples reviewed by Level III criteria.

### **XIII. Tentatively Identified Compounds (TICs)**

Tentatively identified compounds were not reported by the laboratory.

### **XIV. System Performance**

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

### **XV. Overall Assessment**

Data flags are summarized at the end of this report if data has been qualified.

### **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

### **XVII. Field Blanks**

Sample 86-WOPT-659 was identified as an equipment rinseate. No volatile contaminants were found in this blank with the following exceptions:

Equipment Rinse ID	Compound	Concentration (ug/L)
86-WOPT-659	Chloroform	0.21

**Moffett Air Field, Building 88, CTO 86**  
**Volatiles - Data Qualification Summary - SDG 47379**

SDG	Sample	Compound	Flag	A or P	Reason
47379	86-WOPT-653 86-WOPT-654 86-WOPT-655** 86-WOPT-656 86-WOPT-657 86-WOPT-658**	Acetone  Methylene chloride	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
47379	86-WOPT-653	4-Methyl-2-pentanone  1,1,2,2-Tetrachloroethane	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Internal standards (area)
47379	86-WOPT-653	cis-1,2-Dichloroethene Tetrachloroethene Trichloroethene	J (all detects) J (all detects) J (all detects)	A	Compound quantitation and CROs
47379	86-WOPT-654	cis-1,2-Dichloroethene	J (all detects)	A	Compound quantitation and CROs
47379	86-WOPT-657 86-WOPT-658**	Trichloroethene	J (all detects)	A	Compound quantitation and CROs

**Moffett Air Field, Building 88, CTO 86**  
**Volatiles - Laboratory Blank Data Qualification Summary - SDG 47379**

SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P
47379	86-WOPT-653	Acetone Methylene chloride	130U ug/Kg 65U ug/Kg	A
47379	86-WOPT-654	Acetone Methylene chloride	120U ug/Kg 61U ug/Kg	A
47379	86-WOPT-655**	Acetone Methylene chloride	110U ug/Kg 56U ug/Kg	A
47379	86-WOPT-656	Acetone	120U ug/Kg	A
47379	86-WOPT-657	Acetone Methylene chloride	110U ug/Kg 57U ug/Kg	A
47379	86-WOPT-658**	Acetone Methylene chloride	120U ug/Kg 58U ug/Kg	A

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Air Field, Building 88, CTO 86  
**Collection Date:** May 5, 2005  
**LDC Report Date:** June 1, 2005  
**Matrix:** Water  
**Parameters:** Metals  
**Validation Level:** EPA Level III & IV  
**Laboratory:** APPL, Inc.

**Sample Delivery Group (SDG):** 47379

**Sample Identification**

86-WOPT-647\*\*  
86-WOPT-648  
86-WOPT-649  
86-WOPT-650  
86-WOPT-651\*\*  
86-WOPT-652  
86-WOPT-647DL\*\*  
86-WOPT-648DL  
86-WOPT-649DL  
86-WOPT-650DL  
86-WOPT-651DL\*\*  
86-WOPT-652DL

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 12 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 6010B for Metals. The metals analyzed were Calcium, Iron, Magnesium, Potassium, and Sodium.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.



## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

## III. Blanks

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Calcium Potassium	0.033 mg/L 0.11 mg/L	All samples in SDG 47379

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks.

## IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

## V. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
86-WOPT-637MS/MSD (86-WOPT-647** 86-WOPT-648 86-WOPT-649 86-WOPT-650 86-WOPT-651** 86-WOPT-652 86-WOPT-652DL)	Magnesium	48.8 (80-120)	47.2 (80-120)	-	J (all detects) UJ (all non-detects)	A
86-WOPT-637MS/MSD (86-WOPT-647** 86-WOPT-648 86-WOPT-649 86-WOPT-650 86-WOPT-651** 86-WOPT-652)	Potassium  Sodium	32.0 (80-120)  79.6 (80-120)	30.0 (80-120)  -	-  -	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A

## VI. Duplicate Sample Analysis

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

## VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Internal Standards

ICP-MS was not utilized in this SDG.

## IX. Furnace Atomic Absorption QC

Graphite furnace atomic absorption was not utilized in this SDG.

## X. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met with the following exceptions:

Diluted Sample	Analyte	%D (Limits)	Associated Samples	Flag	A or P
86-WOPT-637L	Calcium	11.3 ( $\leq 10$ )	All samples in SDG 47379	J (all detects)	A

## XI. Sample Result Verification

All sample result verification met validation criteria with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
86-WOPT-647** 86-WOPT-648 86-WOPT-649 86-WOPT-650 86-WOPT-651**	Calcium	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	A
86-WOPT-652	Calcium Magnesium	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects)	A

Raw data were not evaluated for samples reviewed by Level III criteria.

## XII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## XIII. Field Duplicates

Samples 86-WOPT-650 and 86-WOPT-651\*\* and samples 86-WOPT-650DL and 86-WOPT-651DL\*\* were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:

Compound	Concentration (mg/L)		RPD
	86-WOPT-850	86-WOPT-651**	
Calcium	300	324	8
Iron	18.3	21.8	17
Magnesium	59.0	64.7	9
Potassium	13.4	13.2	2
Sodium	37.4	37.3	0

Compound	Concentration (mg/L)		RPD
	86-WOPT-850DL	86-WOPT-651DL**	
Calcium	363	336	7

#### **XIV. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Air Field, Building 88, CTO 86**  
**Metals - Data Qualification Summary - SDG 47379**

SDG	Sample	Analyte	Flag	A or P	Reason
47379	86-WOPT-647** 86-WOPT-648 86-WOPT-649 86-WOPT-650 86-WOPT-651** 86-WOPT-652 86-WOPT-652DL	Magnesium	J (all detects) UJ (all non-detects)	A	Matrix spike, Matrix spike duplicates (%R)
47379	86-WOPT-647** 86-WOPT-648 86-WOPT-649 86-WOPT-650 86-WOPT-651** 86-WOPT-652	Potassium  Sodium	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Matrix spike, Matrix spike duplicates (%R)
47379	86-WOPT-647** 86-WOPT-648 86-WOPT-649 86-WOPT-650 86-WOPT-651** 86-WOPT-652 86-WOPT-647DL** 86-WOPT-648DL 86-WOPT-649DL 86-WOPT-650DL 86-WOPT-651DL** 86-WOPT-652DL	Calcium	J (all detects)	A	ICP serial dilution (%D)
47379	86-WOPT-647** 86-WOPT-648 86-WOPT-649 86-WOPT-650 86-WOPT-651**	Calcium	J (all detects)	A	Sample result verification
47379	86-WOPT-652	Calcium Magnesium	J (all detects) J (all detects)	A	Sample result verification

**Moffett Air Field, Building 88, CTO 86**  
**Metals - Laboratory Blank Data Qualification Summary - SDG 47379**

No Sample Data Qualified in this SDG

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Moffett Air Field, Building 88, CTO 86  
**Collection Date:** May 5, 2005  
**LDC Report Date:** June 1, 2005  
**Matrix:** Soil/Water  
**Parameters:** Wet Chemistry  
**Validation Level:** EPA Level III & IV  
**Laboratory:** APPL, Inc./Columbia Analytical Services, Inc.  
**Sample Delivery Group (SDG):** 47379/K2503318

### Sample Identification

86-WOPT-647**	86-WOPT-653DUP
86-WOPT-648	
86-WOPT-649	
86-WOPT-650	
86-WOPT-651**	
86-WOPT-652	
86-WOPT-653	
86-WOPT-654	
86-WOPT-655**	
86-WOPT-656	
86-WOPT-657	
86-WOPT-658**	
86-WOPT-659	
86-WOPT-647DL**	
86-WOPT-648DL	
86-WOPT-649DL	
86-WOPT-650DL	
86-WOPT-651DL**	
86-WOPT-652DL	
86-WOPT-652MS	

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 7 soil samples and 14 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 300.0 for Chloride, Nitrate, Nitrite, and Sulfate, EPA Method 310.1 for Carbonate and Bicarbonate, and Walkley-Black method and EPA SW 846 Method 9060 for Total Organic Carbon.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section IX.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Calibration**

### **a. Initial Calibration**

All criteria for the initial calibration of each method were met.

### **b. Calibration Verification**

Calibration verification frequency and analysis criteria were met for each method when applicable.

## **III. Blanks**

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the method blanks.

## **IV. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **V. Duplicates**

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## **VI. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VII. Sample Result Verification**

All sample result verification met validation criteria with the following exceptions:



Sample	Analyte	Finding	Criteria	Flag	A or P
86-WOPT-647** 86-WOPT-648 86-WOPT-649 86-WOPT-650 86-WOPT-651** 86-WOPT-652	Sulfate	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	A

Raw data were not evaluated for the samples reviewed by Level III criteria.

### VIII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### IX. Field Duplicates

Samples 86-WOPT-650 and 86-WOPT-651\*\* and samples 86-WOPT-650DL and 86-WOPT-651DL\*\* were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration		RPD
	86-WOPT-650	86-WOPT-651**	
Chloride	37800 ug/L	37700 ug/L	0
Nitrate	7830 ug/L	7780 ug/L	1
Sulfate	248000 ug/L	249000 ug/L	0
Bicarbonate	296 mg/L	296 mg/L	0

Analyte	Concentration (ug/L)		RPD
	86-WOPT-650DL	86-WOPT-651DL**	
Sulfate	208000	206000	1

### X. Field Blanks

Sample 86-WOPT-659 was identified as an equipment rinseate. No contaminant concentrations were found in this blank with the following exceptions:

Equipment Rinsate ID	Analyte	Concentration (mg/L)
86-WOPT-659	Total organic carbon	0.61

**Moffett Air Field, Building 88, CTO 86**  
**Wet Chemistry - Data Qualification Summary - SDG 47379/K2503318**

SDG	Sample	Analyte	Flag	A or P	Reason
47379/ K2503318	86-WOPT-647** 86-WOPT-648 86-WOPT-649 86-WOPT-650 86-WOPT-651** 86-WOPT-652	Sulfate	J (all detects)	A	Sample result verification

**Moffett Air Field, Building 88, CTO 86**  
**Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG**  
**47379/K2503318**

No Sample Data Qualified in this SDG



**TETRA TECH**  
12345 Main St.  
San Diego, CA 92101 (619) 234-5678

# CHAIN-OF-CUSTODY RECORD

NUMBER 10782

PROJECT NAME		PURCHASE ORDER NO		PROJECT NO		ANALYSES REQUIRED		LABORATORY NAME		Project Information Section	
BUILDING 88		55432		1990-0460				ATZ		Do not submit to Laboratory	
PROJECT LOCATION		AIRBILL NUMBER		PROJECT CONTACT PHONE NUMBER				LABORATORY ID (FOR LABORATORY)			
WACCEFFIT FIELD CA		L4124 DDD		449 756 7558				47392			
SAMPLER NAME		DATE COLLECTED		TIME COLLECTED		NO. OF CONTAINER		COMMENTS		LOCATION	
L4124 JEFFERSON										DEPTH START END	
SAMPLE ID		LEVEL		T		A				QC	
		1		2		3				START END	
86-WPT-640	5/6/05	0830	3	W	14						TRIP BLANK - - B
86-WPT-641	5/6/05	0835	5	W	14						CPT-86-23 15 17 D
86-WPT-642	5/6/05	0840	5	W	14						CPT-88-23 15 17 D
86-WPT-643	5/6/05	1000	15	W	14						CPT-88-23 15 17 D
86-WPT-644	5/6/05	1010	5	W	14						CPT-88-23 15 17 D
86-WPT-645	5/6/05	1045	5	W	14						CPT-88-23 15 17 D
86-WPT-646	5/6/05	1110	5	W	14						CPT-88-23 15 17 D
86-WPT-647	5/6/05										CPT-88-23 15 17 D
LABORATORY INSTRUCTIONS/COMMENTS										SAMPLING COMMENT:	
24 hr TA - 0.0 VUL ONLY										WHITE NEUTZ	
COMPOSITE DESCRIPTION										SW (GENERAL)	
SAMPLE CONDITION UPON RECEIPT (FOR LABORATORY)										OF HANICATZ	
TEMPERATURE: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN										Bkg. 88 OPT	
COOLING SEAL: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN											
RECEIVED BY (Signature)											
COMPANY											
RECEIVED BY (Signature)											
COMPANY											
RECEIVED BY (Signature)											
COMPANY											
RECEIVED BY (Signature)											
COMPANY											

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management

0047392-11



**TETRA TECH**  
128 Columbia Street, Suite 400  
San Diego, CA 92101 (619) 234-6696

NUMBER 10781

CHAIN-OF-CUSTODY RECORD

PROJECT NAME		PURCHASE ORDER NO		ANALYSES REQUIRED		LABORATORY NAME		Project Information Section Do not submit to Laboratory					
PROJECT LOCATION		PROJECT NO		PROJECT NO		LABORATORY ID (FOR LABORATORY)		LOCATION		DEPTH		QC	
SAMPLER NAME		SAMPLER NO		SAMPLER NO		SAMPLER NO		COMMENTS		START		END	
PROJECT CONTACT		DATE COLLECTED		TIME COLLECTED		NO. OF CONTAINERS		LEVEL		T		T	
PROJECT CONTACT		DATE COLLECTED		TIME COLLECTED		NO. OF CONTAINERS		LEVEL		T		T	
BUILDING 88	55432	1990.08.10	1990.08.10	1990.08.10	1990.08.10	1990.08.10	1990.08.10	1990.08.10	1990.08.10	1990.08.10	1990.08.10	1990.08.10	1990.08.10
WOFFETT FIELD, CA	1990.08.10	1990.08.10	1990.08.10	1990.08.10	1990.08.10	1990.08.10	1990.08.10	1990.08.10	1990.08.10	1990.08.10	1990.08.10	1990.08.10	1990.08.10
LARRY DAVIS	1990.08.10	1990.08.10	1990.08.10	1990.08.10	1990.08.10	1990.08.10	1990.08.10	1990.08.10	1990.08.10	1990.08.10	1990.08.10	1990.08.10	1990.08.10
LYNNIEFFERSON	1990.08.10	1990.08.10	1990.08.10	1990.08.10	1990.08.10	1990.08.10	1990.08.10	1990.08.10	1990.08.10	1990.08.10	1990.08.10	1990.08.10	1990.08.10
SAMPLE ID	DATE COLLECTED	TIME COLLECTED	NO. OF CONTAINERS	LEVEL	T	T	COMMENTS	LOCATION	DEPTH	QC			
86-WOPT-667	9/6/05	1150	11	5	3	3	MS/MSD	CPT-88-23	11	17			
86-WOPT-668	1700	1700	5	5	3	3		CPT-88-23	16	17			
86-WOPT-669	1710	1710	5	5	3	3		CPT-88-23	23	24			
86-WOPT-670	1720	1720	5	5	3	3		CPT-88-23	24	24			
86-WOPT-671	1735	1735	5	5	3	3		CPT-88-23	24	24			
86-WOPT-672	1755	1755	5	5	3	3		CPT-88-23	24	24			
86-WOPT-673	1810	1810	5	5	3	3		CPT-88-23	24	24			
LABORATORY INSTRUCTIONS/COMMENTS													
241F TACON VOCALITY													
COMPOSITE DESCRIPTION													
SAMPLE CONDITION FROM ACCOUNT (FOR LABORATORY)													
TEMPERATURE: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN													
COOLER SEAL: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN													
SAMPLING COMMENT:													
SOW NFEAR2													
SW CORNF2													
HAYNAR21													
Bldg. 88 CPT													

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management

# Data Validation Package

for

Moffett Air Field, WATS Building 88, CTO 86

ARF 47392

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## Case Narrative

ARF: 47392

Project: 1990.086D WATS Bldg 88 Moffett Airfield

State Certification Number: CA1312

Results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

### Sample Receipt Information:

The sample group was received May 06, 2005, at 3.0°C. The samples were assigned Analytical Request Form (ARF) number 47392. The sample numbers and requested analyses were compared to the chains of custody. The soil TOC analysis was sub-contracted to Columbia Analytical Laboratory. No exception was noted.

**Sample Table**

CLIENT ID	APPL ID	Matrix	Date Sampled	Date Received
86-WOPT-660	AX19554	WATER	5/6/05	5/6/05
86-WOPT-661	AX19555	WATER	5/6/05	5/6/05
86-WOPT-662	AX19556	WATER	5/6/05	5/6/05
86-WOPT-663	AX19557	WATER	5/6/05	5/6/05
86-WOPT-664	AX19558	WATER	5/6/05	5/6/05
86-WOPT-665	AX19559	WATER	5/6/05	5/6/05
86-WOPT-666	AX19560	WATER	5/6/05	5/6/05
86-WOPT-667	AX19561	SOIL	5/6/05	5/6/05
86-WOPT-668	AX19562	SOIL	5/6/05	5/6/05
86-WOPT-669	AX19563	SOIL	5/6/05	5/6/05
86-WOPT-670	AX19564	SOIL	5/6/05	5/6/05
86-WOPT-671	AX19565	SOIL	5/6/05	5/6/05
86-WOPT-672	AX19566	SOIL	5/6/05	5/6/05
86-WOPT-673	AX19567	SOIL	5/6/05	5/6/05

## **EPA Method 8260B and CLP Volatiles**

### **Volatile Organic Analysis**

#### **Sample Preparation:**

The samples were purged according to EPA method 5030B, 5035, and CLP. All other holding times were met.

#### **Sample Analysis Information:**

The samples were analyzed according to the method using a Hewlett Packard Gas Chromatograph with a mass spectrometer detector. The sample pH were taken after analysis. All samples had a pH of 2.

#### **Quality Control/Assurance**

##### **Calibrations:**

Initial and continuing calibrations were performed according to the method. For the continuing calibration verification performed on Neo file ID: 0506N23W.D, Chloroethane had a 29%D. All other calibration criteria were met.

##### **Blanks:**

For the 050506BN method blank, Acetone was detected above the reporting limit at 6.7 µg/L. All associated samples containing Acetone were "B" flagged. No other target analyte was detected above the reporting limits in the method blanks.

##### **Spikes:**

Laboratory Control Spikes (LCS) were used for quality assurance. A second-source standard was used for the LCS. All spike and second-source criteria were met. All recoveries were within acceptable limits.

Samples 86-WOPT-667 and 86-WOPT-663 were designated by the client for MS/MSD analysis. For the MS/MSD performed on sample 86-WOPT-667, 1,1-Dichloroethene, Benzene, Chlorobenzene, Toluene, and Trichloroethene recovered below the lower control limits. All other recoveries met acceptance criteria.

##### **Surrogates**

The dilutions for samples 86-WOPT-663, 86-WOPT-664, 86-WOPT-665, 86-WOPT-666 recovered the surrogate Toluene-d8 above the 125% upper control limit at 126%, 129%, 128%, and 133% respectively. For the MSD performed on sample 86-WOPT-667, Toluene-d8 recovered above the 135% upper control limit at 138%. All other surrogate recoveries were within control limits.

##### **Tuning:**

The instrument was tuned using BFB. All method criteria were met.

##### **Internal Standards**

The internal standard area counts were compared to the mid-point of the initial calibration according to method 8260. Samples 86-WOPT-667, 86-WOPT-668, 86-WOPT-669, 86-WOPT-671, and the MS/MSD 86-WOPT-667 recovered the internal standard 1,4-Dichlorobenzene-d4 below the lower control limit. The samples were originally analyzed on May 06, 2005 but was not reported since one of the CCC analytes was greater than 20%D. The samples could not be re-analyzed since the third Encore was extruded into methanol. Only the re-analysis was reported. The only two analytes



calculated using the IS are 1,1,2,2-Tetrachloroethene and 4-Methyl-2-Pentanone. All other method criteria were met. The internal standard area counts were compared to the continuing calibration according to CLP. All method criteria were met.

**Summary:**

No additional problem was encountered.

## **EPA Methods 6010B Metals**

### **Digestion Information:**

The water was digested according to EPA methods 3010A. No exceptions were encountered. All holding times were met.

### **Analysis Information:**

#### **Samples:**

The sample was analyzed for dissolved metals according to EPA method 6010B using a Perkin Elmer Optima 4300DV.

#### **Calibrations:**

Calibrations were performed according to the methods for the initial calibration and the initial calibration verification. The initial calibration verification is prepared from a second source standard.

#### **Blanks:**

Potassium was detected below the reporting limit but above the MDL in the 050509A2 method blank at 0.12mg/L. No other target metal was detected above the reporting limits in the method blank.

#### **Spikes:**

Laboratory Control Spikes (LCS/LCSD) were used for quality assurance. LCS recoveries were within acceptance limits.

Sample 86-WOPT-663 was designated by the client for MS/MSD analysis. For the MS/MSD, Calcium, Iron, Magnesium, Potassium, and Sodium were recovered outside of the 80%-120% control limits except for Potassium in the MS.

### **Summary:**

No analytical exception is noted. All data are acceptable.

# **EPA Methods 300.0 and 310.1**

## **Anions, Carbonates and Bi-carbonates**

### **Sample Preparation Information:**

A Dionex DX500 ion chromatograph was used for the EPA 300.0 analysis. The samples were screened down to the MDL.

### **Analysis Information:**

#### **Samples:**

The sample was analyzed according to the methods. A Dionex DX500 ion chromatograph was used for the EPA 300.0 analysis.

#### **Calibrations:**

Calibrations were performed according to the methods for the initial calibration and the initial calibration verification. The initial calibration verification is prepared from a second source standard.

#### **Blanks:**

No target analyte was detected above the reporting limits in the method blanks.

#### **Spikes:**

Laboratory Control Spikes (LCS/LCSD) and Sample Duplicates were used for quality assurance. All recoveries met acceptance criteria.

Sample 86-WOPT-663 was designated by the client for MS/MSD analysis. For the MS/MSD, Sulfate recovered below the 80% lower control limit at 77.7% and 77.3%. All recoveries met acceptance criteria.

### **Summary:**

No analytical exception is noted.

## **CERTIFICATION**

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the hard copy has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

 5/25/05  
\_\_\_\_\_  
Leonard Fong, Ph.D, Laboratory Director / Date

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-660

Sample Collection Date: 5/6/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47392

APPL ID: AX19554

QCG: \$C42VT-050506BN-86591

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	5/7/05	5/7/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	5/7/05	5/7/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	0.5	0.21	ug/L	5/7/05	5/7/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	5/7/05	5/7/05
CLP VOL	1,1-Dichloroethane	Not detected	0.5	0.19	ug/L	5/7/05	5/7/05
CLP VOL	1,1-Dichloroethene	Not detected	0.5	0.30	ug/L	5/7/05	5/7/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	5/7/05	5/7/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	5/7/05	5/7/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	5/7/05	5/7/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	5/7/05	5/7/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	5/7/05	5/7/05
CLP VOL	Acetone	7.9 B	5	0.95	ug/L	5/7/05	5/7/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	5/7/05	5/7/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	5/7/05	5/7/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	5/7/05	5/7/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	5/7/05	5/7/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	5/7/05	5/7/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	5/7/05	5/7/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	5/7/05	5/7/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	5/7/05	5/7/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	5/7/05	5/7/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	5/7/05	5/7/05
CLP VOL	cis-1,2-Dichloroethene	Not detected	0.5	0.16	ug/L	5/7/05	5/7/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	5/7/05	5/7/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	5/7/05	5/7/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	5/7/05	5/7/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	5/7/05	5/7/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	5/7/05	5/7/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	5/7/05	5/7/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	5/7/05	5/7/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	5/7/05	5/7/05

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0506N28  
Instrument: Neo  
Sequence: N050503  
Dilution Factor: 1  
Initials: LF

Printed 5/25/05 10:09:05 AM  
APPL-F1-SC-MCRRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: **86-WOPT-660**

Sample Collection Date: 5/6/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47392

APPL ID: **AX19554**

QCG: SC42VT-050506BN-86591

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	Not detected	0.5	0.15	ug/L	5/7/05	5/7/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	5/7/05	5/7/05
CLP VOL	trans-1,2-Dichloroethene	Not detected	0.5	0.19	ug/L	5/7/05	5/7/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	5/7/05	5/7/05
CLP VOL	Trichloroethene	Not detected	0.5	0.16	ug/L	5/7/05	5/7/05
CLP VOL	Vinyl Chloride	Not detected	0.5	0.23	ug/L	5/7/05	5/7/05
CLP VOL	Surrogate Recovery (BFB)	104	75-125		%	5/7/05	5/7/05
CLP VOL	Surrogate Recovery (DCA)	106	62-139		%	5/7/05	5/7/05
CLP VOL	Surrogate Recovery (TOL)	112	75-125		%	5/7/05	5/7/05

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0506N28  
Instrument: Neo  
Sequence: N050503  
Dilution Factor: 1  
Initials: LF

Printed: 5/25/05 10:09:05 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-661

ARF: 47392

APPL ID: AX19555

Sample Collection Date: 5/6/05

QCG: SC42VT-050506BN-86591

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	0.86	0.5	0.14	ug/L	5/7/05	5/7/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	5/7/05	5/7/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	5.1	0.5	0.21	ug/L	5/7/05	5/7/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	5/7/05	5/7/05
CLP VOL	1,1-Dichloroethane	14	0.5	0.19	ug/L	5/7/05	5/7/05
CLP VOL	1,1-Dichloroethene	24	0.5	0.30	ug/L	5/7/05	5/7/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	5/7/05	5/7/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	5/7/05	5/7/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	5/7/05	5/7/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	5/7/05	5/7/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	5/7/05	5/7/05
CLP VOL	Acetone	6.6 B	5	0.95	ug/L	5/7/05	5/7/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	5/7/05	5/7/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	5/7/05	5/7/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	5/7/05	5/7/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	5/7/05	5/7/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	5/7/05	5/7/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	5/7/05	5/7/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	5/7/05	5/7/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	5/7/05	5/7/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	5/7/05	5/7/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	5/7/05	5/7/05
CLP VOL	cis-1,2-Dichloroethene	830 E	0.5	0.16	ug/L	5/7/05	5/7/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	5/7/05	5/7/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	5/7/05	5/7/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	5/7/05	5/7/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	5/7/05	5/7/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	5/7/05	5/7/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	5/7/05	5/7/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	5/7/05	5/7/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	5/7/05	5/7/05

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0506N29  
Instrument: Neo  
Sequence: N050503  
Dilution Factor: 1  
Initials: LF

Printed 5/25/05 10:09:05 AM  
APPL-F1-SC-MCRs/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-661

ARF: 47392

APPL ID: AX19555

QCG: SC42VT-050506BN-86591

Sample Collection Date: 5/6/05

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	7.3	0.5	0.15	ug/L	5/7/05	5/7/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	5/7/05	5/7/05
CLP VOL	trans-1,2-Dichloroethene	7.3	0.5	0.19	ug/L	5/7/05	5/7/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	5/7/05	5/7/05
CLP VOL	Trichloroethene	610 E	0.5	0.16	ug/L	5/7/05	5/7/05
CLP VOL	Vinyl Chloride	2.4	0.5	0.23	ug/L	5/7/05	5/7/05
CLP VOL	Surrogate Recovery (BFB)	102	75-125		%	5/7/05	5/7/05
CLP VOL	Surrogate Recovery (DCA)	107	62-139		%	5/7/05	5/7/05
CLP VOL	Surrogate Recovery (TOL)	107	75-125		%	5/7/05	5/7/05

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0506N29  
Instrument: Neo  
Sequence: N050503  
Dilution Factor: 1  
Initials: LF

Printed: 5/25/05 10:09:05 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-661

Sample Collection Date: 5/6/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47392

APPL ID: AX19555

QCG: SC42VD-050515AH-87318

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	1300	200	64.00	ug/L	5/15/05	5/15/05
CLP VOL	Trichloroethene	700	200	64.00	ug/L	5/15/05	5/15/05
CLP VOL	Surrogate Recovery (BFB)	118	75-125		%	5/15/05	5/15/05
CLP VOL	Surrogate Recovery (DCA)	102	62-139		%	5/15/05	5/15/05
CLP VOL	Surrogate Recovery (TOL)	124	75-125		%	5/15/05	5/15/05

Run #: 0515H06  
Instrument: HEWEY  
Sequence: H050513  
Dilution Factor: 400  
Initials: LF

Printed: 5/25/05 10:09:05 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47392

Sample ID: 86-WOPT-662

APPL ID: AX19556

Sample Collection Date: 5/6/05

QCG: SC42VT-050506BN-86591

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	0.80	0.5	0.14	ug/L	5/7/05	5/7/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	5/7/05	5/7/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	4.4	0.5	0.21	ug/L	5/7/05	5/7/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	5/7/05	5/7/05
CLP VOL	1,1-Dichloroethane	13	0.5	0.19	ug/L	5/7/05	5/7/05
CLP VOL	1,1-Dichloroethene	21	0.5	0.30	ug/L	5/7/05	5/7/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	5/7/05	5/7/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	5/7/05	5/7/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	5/7/05	5/7/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	5/7/05	5/7/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	5/7/05	5/7/05
CLP VOL	Acetone	7.2 B	5	0.95	ug/L	5/7/05	5/7/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	5/7/05	5/7/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	5/7/05	5/7/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	5/7/05	5/7/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	5/7/05	5/7/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	5/7/05	5/7/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	5/7/05	5/7/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	5/7/05	5/7/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	5/7/05	5/7/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	5/7/05	5/7/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	5/7/05	5/7/05
CLP VOL	cis-1,2-Dichloroethene	820 E	0.5	0.16	ug/L	5/7/05	5/7/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	5/7/05	5/7/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	5/7/05	5/7/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	5/7/05	5/7/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	5/7/05	5/7/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	5/7/05	5/7/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	5/7/05	5/7/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	5/7/05	5/7/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	5/7/05	5/7/05

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0506N30  
Instrument: Neo  
Sequence: N050503  
Dilution Factor: 1  
Initials: LF

Printed 5/25/05 10:09:05 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 38 Moffett Airfield

Sample ID: 86-WOPT-662

Sample Collection Date: 5/6/05

ARF: 47392

APPL ID: AX19556

QCG: SC42VT-050506BN-86591

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	7.2	0.5	0.15	ug/L	5/7/05	5/7/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	5/7/05	5/7/05
CLP VOL	trans-1,2-Dichloroethene	5.8	0.5	0.19	ug/L	5/7/05	5/7/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	5/7/05	5/7/05
CLP VOL	Trichloroethene	560 E	0.5	0.16	ug/L	5/7/05	5/7/05
CLP VOL	Vinyl Chloride	2.3	0.5	0.23	ug/L	5/7/05	5/7/05
CLP VOL	Surrogate Recovery (BFB)	107	75-125		%	5/7/05	5/7/05
CLP VOL	Surrogate Recovery (DCA)	104	62-139		%	5/7/05	5/7/05
CLP VOL	Surrogate Recovery (TOL)	114	75-125		%	5/7/05	5/7/05

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0506N30  
Instrument: Neo  
Sequence: N050503  
Dilution Factor: 1  
Initials: LF

Printed: 5/25/05 10:09:05 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-662

Sample Collection Date: 5/6/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47392

APPL ID: AX19556

QCG: SC42VD-050515AH-87318

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	1200	200	64.00	ug/L	5/15/05	5/15/05
CLP VOL	Trichloroethene	720	200	64.00	ug/L	5/15/05	5/15/05
CLP VOL	Surrogate Recovery (BFB)	117	75-125		%	5/15/05	5/15/05
CLP VOL	Surrogate Recovery (DCA)	99.2	62-139		%	5/15/05	5/15/05
CLP VOL	Surrogate Recovery (TOL)	124	75-125		%	5/15/05	5/15/05

Run #: 0515H07  
Instrument: HEWEY  
Sequence: H050513  
Dilution Factor: 400  
Initials: LF

Printed: 5/25/05 10:09:05 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-663

Sample Collection Date: 5/6/05

ARF: 47392

APPL ID: AX19557

QCG: \$C42VT-050506BN-86591

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	1.3	0.5	0.14	ug/L	5/7/05	5/7/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	5/7/05	5/7/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	12	0.5	0.21	ug/L	5/7/05	5/7/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	5/7/05	5/7/05
CLP VOL	1,1-Dichloroethane	11	0.5	0.19	ug/L	5/7/05	5/7/05
CLP VOL	1,1-Dichloroethene	23	0.5	0.30	ug/L	5/7/05	5/7/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	5/7/05	5/7/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	5/7/05	5/7/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	5/7/05	5/7/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	5/7/05	5/7/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	5/7/05	5/7/05
CLP VOL	Acetone	6.9 B	5	0.95	ug/L	5/7/05	5/7/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	5/7/05	5/7/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	5/7/05	5/7/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	5/7/05	5/7/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	5/7/05	5/7/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	5/7/05	5/7/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	5/7/05	5/7/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	5/7/05	5/7/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	5/7/05	5/7/05
CLP VOL	Chloroform	0.20 J	0.5	0.16	ug/L	5/7/05	5/7/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	5/7/05	5/7/05
CLP VOL	cis-1,2-Dichloroethene	340 E	0.5	0.16	ug/L	5/7/05	5/7/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	5/7/05	5/7/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	5/7/05	5/7/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	5/7/05	5/7/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	5/7/05	5/7/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	5/7/05	5/7/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	5/7/05	5/7/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	5/7/05	5/7/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	5/7/05	5/7/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0506N34

Instrument: Neo

Sequence: N050503

Dilution Factor: 1

Initials: LF

Printed: 5/25/05 10:09:05 AM

APPL-F1-SC-MCRs/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Mcffett Airfield

Sample ID: 86-WOPT-663

Sample Collection Date: 5/6/05

ARF: 47392

APPL ID: AX19557

QCG: SC42VT-050506BN-86591

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	120J E	0.5	0.15	ug/L	5/7/05	5/7/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	5/7/05	5/7/05
CLP VOL	trans-1,2-Dichloroethene	1.8	0.5	0.19	ug/L	5/7/05	5/7/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	5/7/05	5/7/05
CLP VOL	Trichloroethene	640 E	0.5	0.16	ug/L	5/7/05	5/7/05
CLP VOL	Vinyl Chloride	0.56	0.5	0.23	ug/L	5/7/05	5/7/05
CLP VOL	Surrogate Recovery (BFB)	98.5	75-125		%	5/7/05	5/7/05
CLP VOL	Surrogate Recovery (DCA)	101	62-139		%	5/7/05	5/7/05
CLP VOL	Surrogate Recovery (TOL)	107	75-125		%	5/7/05	5/7/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0506N34  
Instrument: Neo  
Sequence: N050503  
Dilution Factor: 1  
Initials: LF

Printed 5/25/05 10:09:05 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-663

Sample Collection Date: 5/6/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47392

APPL ID: AX19557

QCG: SC42VD-050515AH-87318

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	470	200	64.00	ug/L	5/15/05	5/15/05
CLP VOL	Tetrachloroethene	1300	200	60.00	ug/L	5/15/05	5/15/05
CLP VOL	Trichloroethene	660	200	64.00	ug/L	5/15/05	5/15/05
CLP VOL	Surrogate Recovery (BFB)	118	75-125		%	5/15/05	5/15/05
CLP VOL	Surrogate Recovery (DCA)	98.0	62-139		%	5/15/05	5/15/05
CLP VOL	Surrogate Recovery (TOL)	126 #	75-125		%	5/15/05	5/15/05

# = Recovery (or RPD) is outside QC limits.

Run #: 0515H08  
Instrument: HEWEY  
Sequence: H050513  
Dilution Factor: 400  
Initials: LF

Printed: 5/25/05 10:09:05 AM  
APPL F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47392

Sample ID: 86-WOPT-664

APPL ID: AX19558

Sample Collection Date: 5/6/05

OCG: SC42VT-050506BN-86591

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	0.93	0.5	0.14	ug/L	5/7/05	5/7/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	5/7/05	5/7/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	8.5	0.5	0.21	ug/L	5/7/05	5/7/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	5/7/05	5/7/05
CLP VOL	1,1-Dichloroethane	7.8	0.5	0.19	ug/L	5/7/05	5/7/05
CLP VOL	1,1-Dichloroethene	12	0.5	0.30	ug/L	5/7/05	5/7/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	5/7/05	5/7/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	5/7/05	5/7/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	5/7/05	5/7/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	5/7/05	5/7/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	5/7/05	5/7/05
CLP VOL	Acetone	9.7 B	5	0.95	ug/L	5/7/05	5/7/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	5/7/05	5/7/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	5/7/05	5/7/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	5/7/05	5/7/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	5/7/05	5/7/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	5/7/05	5/7/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	5/7/05	5/7/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	5/7/05	5/7/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	5/7/05	5/7/05
CLP VOL	Chloroform	0.23 J	0.5	0.16	ug/L	5/7/05	5/7/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	5/7/05	5/7/05
CLP VOL	cis-1,2-Dichloroethene	160 E	0.5	0.16	ug/L	5/7/05	5/7/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	5/7/05	5/7/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	5/7/05	5/7/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	5/7/05	5/7/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	5/7/05	5/7/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	5/7/05	5/7/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	5/7/05	5/7/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	5/7/05	5/7/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	5/7/05	5/7/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0506N31  
Instrument: Neo  
Sequence: N050503  
Dilution Factor: 1  
Initials: LF

Printed: 5/25/05 10:55:19 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 66-WDPT-664

Sample Collection Date: 5/6/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47392

APPL ID: AX19558

QC: SC42VT-050506BN-86591

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	320 E	0.5	0.15	ug/L	5/7/05	5/7/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	5/7/05	5/7/05
CLP VOL	trans-1,2-Dichloroethene	1.1	0.5	0.19	ug/L	5/7/05	5/7/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	5/7/05	5/7/05
CLP VOL	Trichloroethene	490 E	0.5	0.16	ug/L	5/7/05	5/7/05
CLP VOL	Vinyl Chloride	0.36 J	0.5	0.23	ug/L	5/7/05	5/7/05
CLP VOL	Surrogate Recovery (BFB)	99.7	75-125		%	5/7/05	5/7/05
CLP VOL	Surrogate Recovery (DCA)	108	62-139		%	5/7/05	5/7/05
CLP VOL	Surrogate Recovery (TOL)	107	75-125		%	5/7/05	5/7/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.  
B = The analyte was found in a method blank, as well as in the sample.

Run #: 0506N31  
Instrument: Neo  
Sequence: N050503  
Dilution Factor: 1  
Initials: LF

Printed: 5/25/05 10 55 19 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.066D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-664

Sample Collection Date: 5/6/05

ARF: 47392

APPL ID: AX19558

QCG: SC42VD-050515AH-87318

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	200	50	16.00	ug/L	5/15/05	5/15/05
CLP VOL	Tetrachloroethene	310	50	15.00	ug/L	5/15/05	5/15/05
CLP VOL	Trichloroethene	530	50	16.00	ug/L	5/15/05	5/15/05
CLP VOL	Surrogate Recovery (BFB)	120	75-125		%	5/15/05	5/15/05
CLP VOL	Surrogate Recovery (DCA)	101	62-139		%	5/15/05	5/15/05
CLP VOL	Surrogate Recovery (TOL)	129 #	75-125		%	5/15/05	5/15/05

# = Recovery (or RPD) is outside QC limits.

Run #: 0515H09  
Instrument: HEWEY  
Sequence: H050513  
Dilution Factor: 100  
Initials: LF

Printed: 5/25/05 10:09:05 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-665

Sample Collection Date: 5/6/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47392

APPL ID: AX19559

CGC: SC42VT-050506BN-86591

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	0.73	0.5	0.14	ug/L	5/7/05	5/7/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	5/7/05	5/7/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	17	0.5	0.21	ug/L	5/7/05	5/7/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	5/7/05	5/7/05
CLP VOL	1,1-Dichloroethane	9.8	0.5	0.19	ug/L	5/7/05	5/7/05
CLP VOL	1,1-Dichloroethene	21	0.5	0.30	ug/L	5/7/05	5/7/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	5/7/05	5/7/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	5/7/05	5/7/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	5/7/05	5/7/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	5/7/05	5/7/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	5/7/05	5/7/05
CLP VOL	Acetone	7.8 B	5	0.95	ug/L	5/7/05	5/7/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	5/7/05	5/7/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	5/7/05	5/7/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	5/7/05	5/7/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	5/7/05	5/7/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	5/7/05	5/7/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	5/7/05	5/7/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	5/7/05	5/7/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	5/7/05	5/7/05
CLP VOL	Chloroform	0.29 J	0.5	0.16	ug/L	5/7/05	5/7/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	5/7/05	5/7/05
CLP VOL	cis-1,2-Dichloroethene	170 E	0.5	0.16	ug/L	5/7/05	5/7/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	5/7/05	5/7/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	5/7/05	5/7/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	5/7/05	5/7/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	5/7/05	5/7/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	5/7/05	5/7/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	5/7/05	5/7/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	5/7/05	5/7/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	5/7/05	5/7/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0506N32  
Instrument: Neo  
Sequence: N050503  
Dilution Factor: 1  
Initials: LF

Printed: 5/25/05 10:09:05 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-665

Sample Collection Date: 5/6/05

ARF: 47392

APPL ID: AX19559

QCG: SC42VT-050506BN-86591

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	1300 E	0.5	0.15	ug/L	5/7/05	5/7/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	5/7/05	5/7/05
CLP VOL	trans-1,2-Dichloroethene	0.94	0.5	0.19	ug/L	5/7/05	5/7/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	5/7/05	5/7/05
CLP VOL	Trichloroethene	570 E	0.5	0.16	ug/L	5/7/05	5/7/05
CLP VOL	Vinyl Chloride	0.54	0.5	0.23	ug/L	5/7/05	5/7/05
CLP VOL	Surrogate Recovery (BFB)	94.5	75-125		%	5/7/05	5/7/05
CLP VOL	Surrogate Recovery (DCA)	103	62-139		%	5/7/05	5/7/05
CLP VOL	Surrogate Recovery (TOL)	101	75-125		%	5/7/05	5/7/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.  
B = The analyte was found in a method blank, as well as in the sample.

Run #: 0506N32  
Instrument: Neo  
Sequence: N050503  
Dilution Factor: 1  
Initials: LF

Printed: 5/25/05 10:09:06 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47392

Sample ID: 86-WOPT-665

APPL ID: AX19559

Sample Collection Date: 5/6/05

QCG: SC42VD-050515AH-87318

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	180	100	32.00	ug/L	5/15/05	5/15/05
CLP VOL	Tetrachloroethene	990	100	30.00	ug/L	5/15/05	5/15/05
CLP VOL	Trichloroethene	340	100	32.00	ug/L	5/15/05	5/15/05
CLP VOL	Surrogate Recovery (BFB)	118	75-125		%	5/15/05	5/15/05
CLP VOL	Surrogate Recovery (DCA)	97.6	62-139		%	5/15/05	5/15/05
CLP VOL	Surrogate Recovery (TOL)	128 #	75-125		%	5/15/05	5/15/05

# = Recovery (or RPD) is outside QC limits.

Run #: 0515H10  
Instrument: HEWEY  
Sequence: H050513  
Dilution Factor: 200  
Initials: LF

Printed: 5/25/05 10:09:05 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Blenkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-666

Sample Collection Date: 5/6/05

ARF: 47392

APPL ID: AX19560

QCG: SC42VT-050506BN-86591

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	0.55	0.5	0.14	ug/L	5/7/05	5/7/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	5/7/05	5/7/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	15	0.5	0.21	ug/L	5/7/05	5/7/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	5/7/05	5/7/05
CLP VOL	1,1-Dichloroethane	8.9	0.5	0.19	ug/L	5/7/05	5/7/05
CLP VOL	1,1-Dichloroethene	18	0.5	0.30	ug/L	5/7/05	5/7/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	5/7/05	5/7/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	5/7/05	5/7/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	5/7/05	5/7/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	5/7/05	5/7/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	5/7/05	5/7/05
CLP VOL	Acetone	8.2 B	5	0.95	ug/L	5/7/05	5/7/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	5/7/05	5/7/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	5/7/05	5/7/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	5/7/05	5/7/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	5/7/05	5/7/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	5/7/05	5/7/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	5/7/05	5/7/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	5/7/05	5/7/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	5/7/05	5/7/05
CLP VOL	Chloroform	0.31 J	0.5	0.16	ug/L	5/7/05	5/7/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	5/7/05	5/7/05
CLP VOL	cis-1,2-Dichloroethene	150 E	0.5	0.16	ug/L	5/7/05	5/7/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	5/7/05	5/7/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	5/7/05	5/7/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	5/7/05	5/7/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	5/7/05	5/7/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	5/7/05	5/7/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	5/7/05	5/7/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	5/7/05	5/7/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	5/7/05	5/7/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0506N33  
Instrument: Neo  
Sequence: N050503  
Dilution Factor: 1  
Initials: LF

Printed: 5/25/05 10:55:19 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: **86-WOPT-666**

Sample Collection Date: 5/6/05

ARF: 47392

APPL ID: **AX19560**

QCG: SC42VT-050506BN-86591

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Tetrachloroethene	1300 E	0.5	0.15	ug/L	5/7/05	5/7/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	5/7/05	5/7/05
CLP VOL	trans-1,2-Dichloroethene	0.71	0.5	0.19	ug/L	5/7/05	5/7/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	5/7/05	5/7/05
CLP VOL	Trichloroethene	530 E	0.5	0.16	ug/L	5/7/05	5/7/05
CLP VOL	Vinyl Chloride	0.45 J	0.5	0.23	ug/L	5/7/05	5/7/05
CLP VOL	Surrogate Recovery (BFB)	95.2	75-125		%	5/7/05	5/7/05
CLP VOL	Surrogate Recovery (DCA)	103	62-139		%	5/7/05	5/7/05
CLP VOL	Surrogate Recovery (TOL)	101	75-125		%	5/7/05	5/7/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0506N33  
Instrument: Neo  
Sequence: N050503  
Dilution Factor: 1  
Initials: LF

Printed: 5/25/05 10:55:19 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech FW, Inc.  
1940 E Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Blenkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-666

Sample Collection Date: 5/6/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47392

APPL ID: AX19560

QCG: SC42VD-050515AH-87315

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	130	100	32.00	ug/L	5/15/05	5/15/05
CLP VOL	Tetrachloroethene	1000	100	30.00	ug/L	5/15/05	5/15/05
CLP VOL	Trichloroethene	320	100	32.00	ug/L	5/15/05	5/15/05
CLP VOL	Surrogate Recovery (BFB)	120	75-125		%	5/15/05	5/15/05
CLP VOL	Surrogate Recovery (DCA)	101	62-139		%	5/15/05	5/15/05
CLP VOL	Surrogate Recovery (TOL)	133 #	75-125		%	5/15/05	5/15/05

# = Recovery (or RPD) is outside QC limits.

Run #: 0515H11  
Instrument: HEWEY  
Sequence: H050513  
Dilution Factor: 200  
Initials: LF

Printed: 5/25/05 10:09:06 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-667

Sample Collection Date: 5/6/05

ARF: 47392

APPL ID: AX19561

QCC: \$86TTS-050519AN-87315

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 23.1 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	7	1.0	ug/Kg	5/19/05	5/19/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	7	1.6	ug/Kg	5/19/05	5/19/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	7	0.62	ug/Kg	5/19/05	5/19/05
EPA 8260B	1,1-Dichloroethane	8.6	7	1.5	ug/Kg	5/19/05	5/19/05
EPA 8260B	1,1-Dichloroethene	22	7	1.0	ug/Kg	5/19/05	5/19/05
EPA 8260B	1,2-Dichloroethane	Not detected	7	0.94	ug/Kg	5/19/05	5/19/05
EPA 8260B	1,2-Dichloropropane	Not detected	7	0.81	ug/Kg	5/19/05	5/19/05
EPA 8260B	2-Butanone	Not detected	65	0.92	ug/Kg	5/19/05	5/19/05
EPA 8260B	2-Hexanone	Not detected	65	0.21	ug/Kg	5/19/05	5/19/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	65	1.2	ug/Kg	5/19/05	5/19/05
EPA 8260B	Acetone	Not detected	130	3.6	ug/Kg	5/19/05	5/19/05
EPA 8260B	Benzene	Not detected	7	0.82	ug/Kg	5/19/05	5/19/05
EPA 8260B	Bromodichloromethane	Not detected	7	0.90	ug/Kg	5/19/05	5/19/05
EPA 8260B	Bromoform	Not detected	7	1.0	ug/Kg	5/19/05	5/19/05
EPA 8260B	Bromomethane	Not detected	13	2.1	ug/Kg	5/19/05	5/19/05
EPA 8260B	Carbon disulfide	Not detected	7	1.4	ug/Kg	5/19/05	5/19/05
EPA 8260B	Carbon tetrachloride	Not detected	7	1.0	ug/Kg	5/19/05	5/19/05
EPA 8260B	Chlorobenzene	Not detected	7	0.64	ug/Kg	5/19/05	5/19/05
EPA 8260B	Chloroethane	Not detected	7	2.0	ug/Kg	5/19/05	5/19/05
EPA 8260B	Chloroform	Not detected	7	1.9	ug/Kg	5/19/05	5/19/05
EPA 8260B	Chloromethane	Not detected	7	2.4	ug/Kg	5/19/05	5/19/05
EPA 8260B	cis-1,2-Dichloroethene	1100	7	1.4	ug/Kg	5/19/05	5/19/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	7	0.61	ug/Kg	5/19/05	5/19/05
EPA 8260B	Dibromochloromethane	Not detected	7	1.1	ug/Kg	5/19/05	5/19/05
EPA 8260B	Ethylbenzene	Not detected	7	0.83	ug/Kg	5/19/05	5/19/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	7	1.2	ug/Kg	5/19/05	5/19/05
EPA 8260B	Methylene chloride	7.5 J	65	6.0	ug/Kg	5/19/05	5/19/05
EPA 8260B	Styrene	Not detected	7	0.90	ug/Kg	5/19/05	5/19/05
EPA 8260B	Tetrachloroethene	2.8 J	7	0.70	ug/Kg	5/19/05	5/19/05
EPA 8260B	Toluene	Not detected	7	0.85	ug/Kg	5/19/05	5/19/05
EPA 8260B	trans-1,2-Dichloroethene	4.3 J	7	1.8	ug/Kg	5/19/05	5/19/05

J = Estimated value, below quantitation limit.

Run #: 0519N12  
Instrument: Neo  
Sequence: N050519  
Dilution Factor: 1  
Initials: LF

Printed: 5/25/05 10:09:06 AM  
APPL-F1-SC-MCRs/MCPOL-REG MDLs

EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-667

Sample Collection Date: 5/6/05

ARF: 47392

APPL ID: AX19561

QCG: \$86TTS-050519AN-87315

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	7	0.56	ug/Kg	5/19/05	5/19/05
EPA 8260B	Trichloroethene	22	7	0.92	ug/Kg	5/19/05	5/19/05
EPA 8260B	Vinyl Acetate	Not detected	65	1.3	ug/Kg	5/19/05	5/19/05
EPA 8260B	Vinyl chloride	Not detected	7	2.2	ug/Kg	5/19/05	5/19/05
EPA 8260B	Xylenes	1.3 J	20	0.88	ug/Kg	5/19/05	5/19/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	96.0	52-149		%	5/19/05	5/19/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	70.0	65-135		%	5/19/05	5/19/05
EPA 8260B	Surrogate recovery: Toluene-d8	124	65-135		%	5/19/05	5/19/05

J = Estimated value, below quantitation limit.

Run #: 0519N12  
Instrument: Neo  
Sequence: N050519  
Dilution Factor: 1  
Initials: LF

Printed: 5/25/05 10:56:19 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-668

Sample Collection Date: 5/6/05

ARF: 47392

APPL ID: AX19562

QCG: \$86TTS-050519AN-87315

Method	Analyte	Result	POL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 17.5 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	0.98	ug/Kg	5/19/05	5/19/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.5	ug/Kg	5/19/05	5/19/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.58	ug/Kg	5/19/05	5/19/05
EPA 8260B	1,1-Dichloroethane	3.3 J	6	1.4	ug/Kg	5/19/05	5/19/05
EPA 8260B	1,1-Dichloroethene	7.3	6	0.96	ug/Kg	5/19/05	5/19/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.87	ug/Kg	5/19/05	5/19/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.75	ug/Kg	5/19/05	5/19/05
EPA 8260B	2-Butanone	Not detected	61	0.86	ug/Kg	5/19/05	5/19/05
EPA 8260B	2-Hexanone	Not detected	61	0.19	ug/Kg	5/19/05	5/19/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	61	1.1	ug/Kg	5/19/05	5/19/05
EPA 8260B	Acetone	Not detected	120	3.4	ug/Kg	5/19/05	5/19/05
EPA 8260B	Benzene	Not detected	6	0.76	ug/Kg	5/19/05	5/19/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.84	ug/Kg	5/19/05	5/19/05
EPA 8260B	Bromoform	Not detected	6	0.97	ug/Kg	5/19/05	5/19/05
EPA 8260B	Bromomethane	Not detected	12	1.9	ug/Kg	5/19/05	5/19/05
EPA 8260B	Carbon disulfide	Not detected	6	1.3	ug/Kg	5/19/05	5/19/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.97	ug/Kg	5/19/05	5/19/05
EPA 8260B	Chlorobenzene	Not detected	6	0.59	ug/Kg	5/19/05	5/19/05
EPA 8260B	Chloroethane	Not detected	6	1.9	ug/Kg	5/19/05	5/19/05
EPA 8260B	Chloroform	Not detected	6	1.7	ug/Kg	5/19/05	5/19/05
EPA 8260B	Chloromethane	Not detected	6	2.2	ug/Kg	5/19/05	5/19/05
EPA 8260B	cis-1,2-Dichloroethene	260	6	1.3	ug/Kg	5/19/05	5/19/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.57	ug/Kg	5/19/05	5/19/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.0	ug/Kg	5/19/05	5/19/05
EPA 8260B	Ethylbenzene	Not detected	6	0.78	ug/Kg	5/19/05	5/19/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	5/19/05	5/19/05
EPA 8260B	Methylene chloride	Not detected	61	5.5	ug/Kg	5/19/05	5/19/05
EPA 8260B	Styrene	Not detected	6	0.84	ug/Kg	5/19/05	5/19/05
EPA 8260B	Tetrachloroethene	28	6	0.85	ug/Kg	5/19/05	5/19/05
EPA 8260B	Toluene	Not detected	6	0.79	ug/Kg	5/19/05	5/19/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.6	ug/Kg	5/19/05	5/19/05

J = Estimated value, below quantitation limit.

Run #: 0519N13  
Instrument: Neo  
Sequence: N050519  
Dilution Factor: 1  
Initials: LF

Printed: 5/25/05 10 09 06 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 85-WOPT-668

Sample Collection Date: 5/6/05

ARF: 47392

APPL ID: AX19562

QCG: S96TTS-050519AN-87315

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.52	ug/Kg	5/19/05	5/19/05
EPA 8260B	Trichloroethene	350	6	0.86	ug/Kg	5/19/05	5/19/05
EPA 8260B	Vinyl Acetate	Not detected	61	1.2	ug/Kg	5/19/05	5/19/05
EPA 8260B	Vinyl chloride	Not detected	6	2.0	ug/Kg	5/19/05	5/19/05
EPA 8260B	Xylenes	Not detected	18	0.82	ug/Kg	5/19/05	5/19/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	98.1	52-149		%	5/19/05	5/19/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	75.7	65-135		%	5/19/05	5/19/05
EPA 8260B	Surrogate recovery: Toluene-d8	131	65-135		%	5/19/05	5/19/05

J = Estimated value, below quantitation limit.

Run #: 0519N13  
Instrument: Neo  
Sequence: N050519  
Dilution Factor: 1  
Initials: LF

Printed: 5/25/05 10:09:06 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-669

Sample Collection Date: 5/6/05

ARF: 47392

APPL ID: AX19563

QCG: S86TTS-050519AN-87315

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 22.7 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	7	1.0	ug/Kg	5/19/05	5/19/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	7	1.6	ug/Kg	5/19/05	5/19/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	7	0.62	ug/Kg	5/19/05	5/19/05
EPA 8260B	1,1-Dichloroethane	1.6 J	7	1.5	ug/Kg	5/19/05	5/19/05
EPA 8260B	1,1-Dichloroethene	2.9 J	7	1.0	ug/Kg	5/19/05	5/19/05
EPA 8260B	1,2-Dichloroethane	Not detected	7	0.93	ug/Kg	5/19/05	5/19/05
EPA 8260B	1,2-Dichloropropane	Not detected	7	0.80	ug/Kg	5/19/05	5/19/05
EPA 8260B	2-Butanone	Not detected	65	0.92	ug/Kg	5/19/05	5/19/05
EPA 8260B	2-Hexanone	Not detected	65	0.21	ug/Kg	5/19/05	5/19/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	65	1.2	ug/Kg	5/19/05	5/19/05
EPA 8260B	Acetone	Not detected	130	3.6	ug/Kg	5/19/05	5/19/05
EPA 8260B	Benzene	Not detected	7	0.82	ug/Kg	5/19/05	5/19/05
EPA 8260B	Bromodichloromethane	Not detected	7	0.89	ug/Kg	5/19/05	5/19/05
EPA 8260B	Bromoform	Not detected	7	1.0	ug/Kg	5/19/05	5/19/05
EPA 8260B	Bromomethane	Not detected	13	2.1	ug/Kg	5/19/05	5/19/05
EPA 8260B	Carbon disulfide	Not detected	7	1.4	ug/Kg	5/19/05	5/19/05
EPA 8260B	Carbon tetrachloride	Not detected	7	1.0	ug/Kg	5/19/05	5/19/05
EPA 8260B	Chlorobenzene	Not detected	7	0.63	ug/Kg	5/19/05	5/19/05
EPA 8260B	Chloroethane	Not detected	7	2.0	ug/Kg	5/19/05	5/19/05
EPA 8260B	Chloroform	Not detected	7	1.8	ug/Kg	5/19/05	5/19/05
EPA 8260B	Chloromethane	Not detected	7	2.4	ug/Kg	5/19/05	5/19/05
EPA 8260B	cis-1,2-Dichloroethene	25	7	1.4	ug/Kg	5/19/05	5/19/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	7	0.61	ug/Kg	5/19/05	5/19/05
EPA 8260B	Dibromochloromethane	Not detected	7	1.1	ug/Kg	5/19/05	5/19/05
EPA 8260B	Ethylbenzene	Not detected	7	0.83	ug/Kg	5/19/05	5/19/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	7	1.1	ug/Kg	5/19/05	5/19/05
EPA 8260B	Methylene chloride	Not detected	65	5.9	ug/Kg	5/19/05	5/19/05
EPA 8260B	Styrene	Not detected	7	0.89	ug/Kg	5/19/05	5/19/05
EPA 8260B	Tetrachloroethene	200	7	0.70	ug/Kg	5/19/05	5/19/05
EPA 8260B	Toluene	Not detected	7	0.84	ug/Kg	5/19/05	5/19/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	7	1.8	ug/Kg	5/19/05	5/19/05

J = Estimated value, below quantitation limit.

Run #: 0519N14  
Instrument: Neo  
Sequence: N050519  
Dilution Factor: 1  
Initials: LF

Printed: 5/25/05 10 09 06 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-669**

ARF: 47392

**APPL ID: AX19563**

Sample Collection Date: 5/6/05

QCG: \$86TTS-050519AN-87315

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	7	0.56	ug/Kg	5/19/05	5/19/05
EPA 8260B	Trichloroethene	86	7	0.92	ug/Kg	5/19/05	5/19/05
EPA 8260B	Vinyl Acetate	Not detected	65	1.3	ug/Kg	5/19/05	5/19/05
EPA 8260B	Vinyl chloride	Not detected	7	2.2	ug/Kg	5/19/05	5/19/05
EPA 8260B	Xylenes	Not detected	19	0.88	ug/Kg	5/19/05	5/19/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	97.7	52-149		%	5/19/05	5/19/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	78.8	65-135		%	5/19/05	5/19/05
EPA 8260B	Surrogate recovery: Toluene-d8	125	65-135		%	5/19/05	5/19/05

J = Estimated value, below quantitation limit.

Run #: 0519N14  
Instrument: Neo  
Sequence: N050519  
Dilution Factor: 1  
Initials: LF

Printed 5/25/05 10:09:06 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-670

Sample Collection Date: 5/6/05

ARF: 47392

APPL ID: AX19564

QCC: \$86TTS-050519AN-87315

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 21.8 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	1.0	ug/Kg	5/19/05	5/19/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.6	ug/Kg	5/19/05	5/19/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.61	ug/Kg	5/19/05	5/19/05
EPA 8260B	1,1-Dichloroethane	Not detected	6	1.4	ug/Kg	5/19/05	5/19/05
EPA 8260B	1,2-Dichloroethane	1.3 J	6	1.0	ug/Kg	5/19/05	5/19/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.92	ug/Kg	5/19/05	5/19/05
EPA 8260B	2-Butanone	Not detected	6	0.79	ug/Kg	5/19/05	5/19/05
EPA 8260B	2-Hexanone	Not detected	64	0.91	ug/Kg	5/19/05	5/19/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	64	0.20	ug/Kg	5/19/05	5/19/05
EPA 8260B	Acetone	Not detected	64	1.2	ug/Kg	5/19/05	5/19/05
EPA 8260B	Benzene	Not detected	130	3.6	ug/Kg	5/19/05	5/19/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.81	ug/Kg	5/19/05	5/19/05
EPA 8260B	Bromoform	Not detected	6	0.88	ug/Kg	5/19/05	5/19/05
EPA 8260B	Bromomethane	Not detected	6	1.0	ug/Kg	5/19/05	5/19/05
EPA 8260B	Carbon disulfide	Not detected	13	2.0	ug/Kg	5/19/05	5/19/05
EPA 8260B	Carbon tetrachloride	Not detected	6	1.4	ug/Kg	5/19/05	5/19/05
EPA 8260B	Chlorobenzene	Not detected	6	1.0	ug/Kg	5/19/05	5/19/05
EPA 8260B	Chloroethane	Not detected	6	0.63	ug/Kg	5/19/05	5/19/05
EPA 8260B	Chloroform	Not detected	6	2.0	ug/Kg	5/19/05	5/19/05
EPA 8260B	Chloromethane	Not detected	6	1.8	ug/Kg	5/19/05	5/19/05
EPA 8260B	cis-1,2-Dichloroethene	Not detected	6	2.3	ug/Kg	5/19/05	5/19/05
EPA 8260B	cis-1,3-Dichloropropene	10	6	1.4	ug/Kg	5/19/05	5/19/05
EPA 8260B	Dibromochloromethane	Not detected	6	0.60	ug/Kg	5/19/05	5/19/05
EPA 8260B	Ethylbenzene	Not detected	6	1.1	ug/Kg	5/19/05	5/19/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	0.82	ug/Kg	5/19/05	5/19/05
EPA 8260B	Methylene chloride	Not detected	6	1.1	ug/Kg	5/19/05	5/19/05
EPA 8260B	Styrene	Not detected	64	5.9	ug/Kg	5/19/05	5/19/05
EPA 8260B	Tetrachloroethene	Not detected	6	0.88	ug/Kg	5/19/05	5/19/05
EPA 8260B	Toluene	43	6	0.69	ug/Kg	5/19/05	5/19/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	0.83	ug/Kg	5/19/05	5/19/05
		Not detected	6	1.7	ug/Kg	5/19/05	5/19/05

J = Estimated value, below quantitation limit.

Run #: 0519N15  
Instrument: Neo  
Sequence: N050519  
Dilution Factor: 1  
Initials: LF

Printed: 5/25/05 10:09:06 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-670**

Sample Collection Date: 5/6/05

ARF: 47392

**APPL ID: AX19564**

QCG: S86TTS-050519AN-87315

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.55	ug/Kg	5/19/05	5/19/05
EPA 8260B	Trichloroethene	29	6	0.91	ug/Kg	5/19/05	5/19/05
EPA 8250B	Vinyl Acetate	Not detected	64	1.3	ug/Kg	5/19/05	5/19/05
EPA 8260B	Vinyl chloride	Not detected	6	2.1	ug/Kg	5/19/05	5/19/05
EPA 8260B	Xylenes	Not detected	19	0.87	ug/Kg	5/19/05	5/19/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	96.7	52-149		%	5/19/05	5/19/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	79.8	65-135		%	5/19/05	5/19/05
EPA 8260B	Surrogate recovery: Toluene-d8	122	65-135		%	5/19/05	5/19/05

J = Estimated value, below quantitation limit.

Run #: 0519N15  
Instrument: Neo  
Sequence: N050519  
Dilution Factor: 1  
Initials: LF

Printed: 5/25/05 10 09 06 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



**EPA 8260B**

Tetra Tech FW, Inc.

1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.

4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project. 1990.086D WATS Bldg 88 Moffett Airfield

ARF: 47392

Sample ID: 86-WOPT-671

APPL ID: AX19565

Sample Collection Date: 5/6/05

QCC: S86TTS-050519AN-87315

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 15.9 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	0.96	ug/Kg	5/19/05	5/19/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.5	ug/Kg	5/19/05	5/19/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.57	ug/Kg	5/19/05	5/19/05
EPA 8260B	1,1-Dichloroethane	Not detected	6	1.3	ug/Kg	5/19/05	5/19/05
EPA 8260B	1,1-Dichloroethene	Not detected	6	0.94	ug/Kg	5/19/05	5/19/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.86	ug/Kg	5/19/05	5/19/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.74	ug/Kg	5/19/05	5/19/05
EPA 8260B	2-Butanone	Not detected	59	0.84	ug/Kg	5/19/05	5/19/05
EPA 8260B	2-Hexanone	Not detected	59	0.19	ug/Kg	5/19/05	5/19/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	59	1.1	ug/Kg	5/19/05	5/19/05
EPA 8260B	Acetone	Not detected	120	3.3	ug/Kg	5/19/05	5/19/05
EPA 8260B	Benzene	Not detected	6	0.75	ug/Kg	5/19/05	5/19/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.82	ug/Kg	5/19/05	5/19/05
EPA 8260B	Bromoform	Not detected	6	0.95	ug/Kg	5/19/05	5/19/05
EPA 8260B	Bromomethane	Not detected	12	1.9	ug/Kg	5/19/05	5/19/05
EPA 8260B	Carbon disulfide	Not detected	6	1.3	ug/Kg	5/19/05	5/19/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.95	ug/Kg	5/19/05	5/19/05
EPA 8260B	Chlorobenzene	Not detected	6	0.58	ug/Kg	5/19/05	5/19/05
EPA 8260B	Chloroethane	Not detected	6	1.8	ug/Kg	5/19/05	5/19/05
EPA 8260B	Chloroform	Not detected	6	1.7	ug/Kg	5/19/05	5/19/05
EPA 8260B	Chloromethane	Not detected	6	2.2	ug/Kg	5/19/05	5/19/05
EPA 8260B	cis-1,2-Dichloroethene	3.5 J	6	1.3	ug/Kg	5/19/05	5/19/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.56	ug/Kg	5/19/05	5/19/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.0	ug/Kg	5/19/05	5/19/05
EPA 8260B	Ethylbenzene	Not detected	6	0.76	ug/Kg	5/19/05	5/19/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	5/19/05	5/19/05
EPA 8260B	Methylene chloride	Not detected	59	5.4	ug/Kg	5/19/05	5/19/05
EPA 8260B	Styrene	Not detected	6	0.82	ug/Kg	5/19/05	5/19/05
EPA 8260B	Tetrachloroethene	6.0	6	0.64	ug/Kg	5/19/05	5/19/05
EPA 8260B	Toluene	Not detected	6	0.77	ug/Kg	5/19/05	5/19/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.6	ug/Kg	5/19/05	5/19/05

J = Estimated value, below quantitation limit.

Run #: 0519N16  
Instrument: Neo  
Sequence: N050519  
Dilution Factor: 1  
Initials: LFPrinted 5/25/05 10:09:06 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bidg 88 Moffett Airfield

Sample ID: 86-WOPT-671

Sample Collection Date: 5/6/05

ARF: 47392

APPL ID: AX19565

QCG: \$86TTS-050519AN-87315

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.51	ug/Kg	5/19/05	5/19/05
EPA 8260B	Trichloroethene	5.1 J	6	0.84	ug/Kg	5/19/05	5/19/05
EPA 8260B	Vinyl Acetate	Not detected	59	1.2	ug/Kg	5/19/05	5/19/05
EPA 8260B	Vinyl chloride	Not detected	6	2.0	ug/Kg	5/19/05	5/19/05
EPA 8260B	Xylenes	Not detected	18	0.81	ug/Kg	5/19/05	5/19/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	95.2	52-149		%	5/19/05	5/19/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	77.0	65-135		%	5/19/05	5/19/05
EPA 8260B	Surrogate recovery: Toluene-d8	118	65-135		%	5/19/05	5/19/05

J = Estimated value, below quantitation limit.

Run #: 0519N16  
Instrument: Neo  
Sequence: N050519  
Dilution Factor: 1  
Initials: LF

Printed: 5/25/05 10 09 06 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

ARF: 47392

Project: 1990.086D WATS Bldg 88 Moffett Airfield

APPL ID: AX19566

Sample ID: 86-WOPT-672

QCG: \$86TTS-050519AN-87315

Sample Collection Date: 5/6/05

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 20.6 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	1.0	ug/Kg	5/19/05	5/19/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.6	ug/Kg	5/19/05	5/19/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.60	ug/Kg	5/19/05	5/19/05
EPA 8260B	1,1-Dichloroethane	Not detected	6	1.4	ug/Kg	5/19/05	5/19/05
EPA 8260B	1,1-Dichloroethene	Not detected	6	0.99	ug/Kg	5/19/05	5/19/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.91	ug/Kg	5/19/05	5/19/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.78	ug/Kg	5/19/05	5/19/05
EPA 8260B	2-Butanone	Not detected	63	0.89	ug/Kg	5/19/05	5/19/05
EPA 8260B	2-Hexanone	Not detected	63	0.20	ug/Kg	5/19/05	5/19/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	63	1.2	ug/Kg	5/19/05	5/19/05
EPA 8260B	Acetone	Not detected	130	3.5	ug/Kg	5/19/05	5/19/05
EPA 8260B	Benzene	Not detected	6	0.79	ug/Kg	5/19/05	5/19/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.87	ug/Kg	5/19/05	5/19/05
EPA 8260B	Bromoform	Not detected	6	1.0	ug/Kg	5/19/05	5/19/05
EPA 8260B	Bromomethane	Not detected	13	2.0	ug/Kg	5/19/05	5/19/05
EPA 8260B	Carbon disulfide	Not detected	6	1.4	ug/Kg	5/19/05	5/19/05
EPA 8260B	Carbon tetrachloride	Not detected	6	1.0	ug/Kg	5/19/05	5/19/05
EPA 8260B	Chlorobenzene	Not detected	6	0.62	ug/Kg	5/19/05	5/19/05
EPA 8260B	Chloroethane	Not detected	6	2.0	ug/Kg	5/19/05	5/19/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	5/19/05	5/19/05
EPA 8260B	Chloromethane	Not detected	6	2.3	ug/Kg	5/19/05	5/19/05
EPA 8260B	cis-1,2-Dichloroethene	Not detected	6	1.4	ug/Kg	5/19/05	5/19/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.59	ug/Kg	5/19/05	5/19/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.1	ug/Kg	5/19/05	5/19/05
EPA 8260B	Ethylbenzene	Not detected	6	0.81	ug/Kg	5/19/05	5/19/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	5/19/05	5/19/05
EPA 8260B	Methylene chloride	Not detected	63	5.8	ug/Kg	5/19/05	5/19/05
EPA 8260B	Styrene	Not detected	6	0.87	ug/Kg	5/19/05	5/19/05
EPA 8260B	Tetrachloroethene	610	6	0.68	ug/Kg	5/19/05	5/19/05
EPA 8260B	Toluene	Not detected	6	0.82	ug/Kg	5/19/05	5/19/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.7	ug/Kg	5/19/05	5/19/05

Run #: 0519N17

Instrument: Neo

Sequence: N050519

Dilution Factor: 1

Initials: LF

Printed: 5/25/05 10:09:06 AM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA 8260B**

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Blenkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-672

Sample Collection Date: 5/6/05

ARF: 47392

APPL ID: AX19566

QCG: \$86TTS-050519AN-87315

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.54	ug/Kg	5/19/05	5/19/05
EPA 8260B	Trichloroethene	7.4	6	0.89	ug/Kg	5/19/05	5/19/05
EPA 8260B	Vinyl Acetate	Not detected	63	1.3	ug/Kg	5/19/05	5/19/05
EPA 8260B	Vinyl chloride	Not detected	6	2.1	ug/Kg	5/19/05	5/19/05
EPA 8260B	Xylenes	Not detected	19	0.86	ug/Kg	5/19/05	5/19/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	101	52-149		%	5/19/05	5/19/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	80.3	65-135		%	5/19/05	5/19/05
EPA 8260B	Surrogate recovery: Toluene-d8	125	65-135		%	5/19/05	5/19/05

Run #: 0519N17  
Instrument: Neo  
Sequence: N050519  
Dilution Factor: 1  
Initials: LF

Printed 5/25/05 10:09:06 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-673

Sample Collection Date: 5/6/05

ARF: 47392

APPL ID: AX19567

QCQ: 86TTS-050519AN-87315

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 19.7 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	1.0	ug/Kg	5/19/05	5/19/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.5	ug/Kg	5/19/05	5/19/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.60	ug/Kg	5/19/05	5/19/05
EPA 8260B	1,1-Dichloroethane	Not detected	6	1.4	ug/Kg	5/19/05	5/19/05
EPA 8260B	1,1-Dichloroethene	Not detected	6	0.98	ug/Kg	5/19/05	5/19/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.90	ug/Kg	5/19/05	5/19/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.77	ug/Kg	5/19/05	5/19/05
EPA 8260B	2-Butanone	Not detected	62	0.88	ug/Kg	5/19/05	5/19/05
EPA 8260B	2-Hexanone	Not detected	62	0.20	ug/Kg	5/19/05	5/19/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	62	1.2	ug/Kg	5/19/05	5/19/05
EPA 8260B	Acetone	Not detected	120	3.5	ug/Kg	5/19/05	5/19/05
EPA 8260B	Benzene	Not detected	6	0.78	ug/Kg	5/19/05	5/19/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.86	ug/Kg	5/19/05	5/19/05
EPA 8260B	Bromoform	Not detected	6	1.0	ug/Kg	5/19/05	5/19/05
EPA 8260B	Bromomethane	Not detected	12	2.0	ug/Kg	5/19/05	5/19/05
EPA 8260B	Carbon disulfide	Not detected	6	1.3	ug/Kg	5/19/05	5/19/05
EPA 8260B	Carbon tetrachloride	Not detected	6	1.0	ug/Kg	5/19/05	5/19/05
EPA 8260B	Chlorobenzene	Not detected	6	0.61	ug/Kg	5/19/05	5/19/05
EPA 8260B	Chloroethane	Not detected	6	1.9	ug/Kg	5/19/05	5/19/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	5/19/05	5/19/05
EPA 8260B	Chloromethane	Not detected	6	2.3	ug/Kg	5/19/05	5/19/05
EPA 8260B	cis-1,2-Dichloroethene	Not detected	6	1.3	ug/Kg	5/19/05	5/19/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.59	ug/Kg	5/19/05	5/19/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.1	ug/Kg	5/19/05	5/19/05
EPA 8260B	Ethylbenzene	Not detected	6	0.80	ug/Kg	5/19/05	5/19/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	5/19/05	5/19/05
EPA 8260B	Methylene chloride	Not detected	62	5.7	ug/Kg	5/19/05	5/19/05
EPA 8260B	Styrene	Not detected	6	0.86	ug/Kg	5/19/05	5/19/05
EPA 8260B	Tetrachloroethene	8.7	6	0.67	ug/Kg	5/19/05	5/19/05
EPA 8260B	Toluene	Not detected	6	0.81	ug/Kg	5/19/05	5/19/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.7	ug/Kg	5/19/05	5/19/05

Run #: 0519N18

Instrument: Neo

Sequence: N050519

Dilution Factor: 1

Initials: LF

Printed: 5/25/05 10:09 06 AM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990 086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-673

Sample Collection Date: 5/6/05

ARF: 47392

APPL ID: AX19567

QCG: \$86TTS-050519AN-87315

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.54	ug/Kg	5/19/05	5/19/05
EPA 8260B	Trichloroethene	Not detected	6	0.88	ug/Kg	5/19/05	5/19/05
EPA 8260B	Vinyl Acetate	Not detected	62	1.2	ug/Kg	5/19/05	5/19/05
EPA 8260B	Vinyl chloride	Not detected	6	2.1	ug/Kg	5/19/05	5/19/05
EPA 8260B	Xylenes	Not detected	19	0.85	ug/Kg	5/19/05	5/19/05
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	97.6	52-149		%	5/19/05	5/19/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	75.0	65-135		%	5/19/05	5/19/05
EPA 8260B	Surrogate recovery: Toluene-d8	121	65-135		%	5/19/05	5/19/05

Run #: 0519N18  
Instrument: Neo  
Sequence: N050519  
Dilution Factor: 1  
Initials: LF

Printed: 5/25/05 10:09:06 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-661**

Sample Collection Date: 5/6/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47392

**APPL ID: AX19555**

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	397	25	0.14	mg/L	5/9/05	5/19/05
6010B	Calcium (Ca)	385 E	5	0.0272	mg/L	5/9/05	5/18/05
6010B	Iron (Fe)	16.7	0.1	0.0258	mg/L	5/9/05	5/18/05
6010B	Magnesium (Mg)	99.9	5	0.0129	mg/L	5/9/05	5/18/05
6010B	Potassium (K)	13.1	5	0.0995	mg/L	5/9/05	5/18/05
6010B	Sodium (Na)	45.0	5	0.1111	mg/L	5/9/05	5/18/05

E = The reported value exceeds linear range.

Printed: 5/24/05 1:22:23 PM  
2L-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-662

Sample Collection Date: 5/6/05

ARF: 47392

APPL ID: AX19556

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	381	25	0.14	mg/L	5/9/05	5/19/05
6010B	Calcium (Ca)	346 E	5	0.0272	mg/L	5/9/05	5/18/05
6010B	Iron (Fe)	22.1	0.1	0.0258	mg/L	5/9/05	5/18/05
6010B	Magnesium (Mg)	98.1	5	0.0129	mg/L	5/9/05	5/18/05
6010B	Potassium (K)	11.2	5	0.0995	mg/L	5/9/05	5/18/05
6010B	Sodium (Na)	41.8	5	0.1111	mg/L	5/9/05	5/18/05

E = The reported value exceeds linear range.



## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-663**

Sample Collection Date: 5/6/05

ARF: 47392

**APPL ID: AX19557**

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	357	25	0.14	mg/L	5/9/05	5/18/05
6010B	Calcium (Ca)	333 E	5	0.0272	mg/L	5/9/05	5/18/05
6010B	Iron (Fe)	26.3	0.1	0.0258	mg/L	5/9/05	5/18/05
6010B	Magnesium (Mg)	96.9	5	0.0129	mg/L	5/9/05	5/18/05
6010B	Potassium (K)	9.4	5	0.0995	mg/L	5/9/05	5/18/05
6010B	Sodium (Na)	42.9	5	0.1111	mg/L	5/9/05	5/18/05

E = The reported value exceeds linear range.

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-664**

Sample Collection Date: 5/6/05

ARF: 47392

**APPL ID: AX19558**

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	263	25	0.14	mg/L	5/9/05	5/19/05
6010B	Calcium (Ca)	246 E	5	0.0272	mg/L	5/9/05	5/18/05
6010B	Iron (Fe)	21.2	0.1	0.0258	mg/L	5/9/05	5/18/05
6010B	Magnesium (Mg)	81.4	5	0.0129	mg/L	5/9/05	5/18/05
6010B	Potassium (K)	9.3	5	0.0995	mg/L	5/9/05	5/18/05
6010B	Sodium (Na)	46.7	5	0.1111	mg/L	5/9/05	5/18/05

E = The reported value exceeds linear range.

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-665**

ARF: 47392

Sample Collection Date: 5/6/05

**APPL ID: AX19559**

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	690	50	0.27	mg/L	5/9/05	5/19/05
6010B	Calcium (Ca)	646 E	5	0.0272	mg/L	5/9/05	5/18/05
6010B	Iron (Fe)	11.8	0.1	0.0258	mg/L	5/9/05	5/18/05
6010B	Magnesium (Mg)	97.2	5	0.0129	mg/L	5/9/05	5/18/05
6010B	Potassium (K)	8.8	5	0.0995	mg/L	5/9/05	5/18/05
6010B	Sodium (Na)	45.0	5	0.1111	mg/L	5/9/05	5/18/05

E = The reported value exceeds linear range.

Printed: 5/24/05 1:22:23 PM  
PL-F1-SC-MCRes/MCPQL-REG MDLs

## Metals Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: **86-WOPT-666**

Sample Collection Date: 5/6/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 47392

APPL ID: **AX19560**

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
6010B	Calcium (Ca)	536	50	0.27	mg/L	5/9/05	5/19/05
6010B	Calcium (Ca)	480 E	5	0.0272	mg/L	5/9/05	5/18/05
6010B	Iron (Fe)	5.7	0.1	0.0258	mg/L	5/9/05	5/18/05
6010B	Magnesium (Mg)	89.0	5	0.0129	mg/L	5/9/05	5/18/05
6010B	Potassium (K)	6.8	5	0.0995	mg/L	5/9/05	5/18/05
6010B	Sodium (Na)	45.3	5	0.1111	mg/L	5/9/05	5/18/05

E = The reported value exceeds linear range.

Printed: 5/24/05 1:22:23 PM

L-F1-SC-MCRes/MCPQL-REG MDLs

# Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-661

Sample Collection Date: 5/6/2005

APPL ID: AX19555

ARF: 47392

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	35700	1000	80	ug/L	5/7/2005	5/7/2005
EPA 300.0	Nitrate	681 J	200	15	ug/L	5/7/2005	5/7/2005
EPA 300.0	Nitrile	Not detected	100	33	ug/L	5/7/2005	5/7/2005
EPA 300.0	Sulfate	486000 E	1000	90	ug/L	5/7/2005	5/7/2005
EPA 300.0	Sulfate	414000	5000	450	ug/L	5/7/2005	5/7/2005
EPA 310.1	Bicarbonate	303	5	0.787	mg/L	5/17/2005	5/17/2005
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	5/17/2005	5/17/2005

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

Printed: 6/6/2005 10:50:46 AM

APPL-F1-SC-MCRes/MCPQL-REG MDLs

# Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-662

Sample Collection Date: 5/6/2005

APPL ID: AX19556

ARF: 47392

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	35800	1000	80	ug/L	5/7/2005	5/7/2005
EPA 300.0	Nitrate	736 J	200	15	ug/L	5/7/2005	5/7/2005
EPA 300.0	Nitrite	Not detected	100	33	ug/L	5/7/2005	5/7/2005
EPA 300.0	Sulfate	488000 E	1000	90	ug/L	5/7/2005	5/7/2005
EPA 300.0	Sulfate	417000	5000	450	ug/L	5/7/2005	5/7/2005
EPA 310.1	Bicarbonate	290	5	0.787	mg/L	5/17/2005	5/17/2005
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	5/17/2005	5/17/2005

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-663

Sample Collection Date: 5/6/05

APPL ID: AX19557

ARF: 47392

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	40000	1000	80	ug/L	5/7/05	5/7/05
EPA 300.0	Nitrate	4430	200	15	ug/L	5/7/05	5/7/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	5/7/05	5/7/05
EPA 300.0	Sulfate	496000 E	1000	90	ug/L	5/7/05	5/7/05
EPA 300.0	Sulfate	422000	5000	450	ug/L	5/7/05	5/7/05
EPA 310.1	Bicarbonate	317	5	0.787	mg/L	5/17/05	5/17/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	5/17/05	5/17/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Doore Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-664

Sample Collection Date: 5/6/2005

APPL ID: AX19558

ARF: 47392

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	40400	1000	80	ug/L	5/7/2005	5/7/2005
EPA 300.0	Nitrate	4120	200	15	ug/L	5/7/2005	5/7/2005
EPA 300.0	Nitrite	Not detected	100	33	ug/L	5/7/2005	5/7/2005
EPA 300.0	Sulfate	472000 E	1000	90	ug/L	5/7/2005	5/7/2005
EPA 300.0	Sulfate	402000	5000	450	ug/L	5/7/2005	5/7/2005
EPA 310.1	Bicarbonate	297	5	0.787	mg/L	5/17/2005	5/17/2005
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	5/17/2005	5/17/2005

E = The reported value exceeds linear range.

**AMENDED PAGE**

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APPL-F1-SC-MCRes/MCPQL-REG MDLs



## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-665

Sample Collection Date: 5/6/05

APPL ID: AX19559

ARF: 47392

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	39200	1000	80	ug/L	5/7/05	5/7/05
EPA 300.0	Nitrate	3980	200	15	ug/L	5/7/05	5/7/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	5/7/05	5/7/05
EPA 300.0	Sulfate	442000 E	1000	90	ug/L	5/7/05	5/7/05
EPA 300.0	Sulfate	396000	5000	450	ug/L	5/7/05	5/7/05
EPA 310.1	Bicarbonate	288	5	0.787	mg/L	5/17/05	5/17/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	5/17/05	5/17/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-666

Sample Collection Date: 5/6/05

APPL ID: AX19560

ARF: 47392

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Chloride	38700	1000	80	ug/L	5/7/05	5/7/05
EPA 300.0	Nitrate	7640	200	15	ug/L	5/7/05	5/7/05
EPA 300.0	Nitrite	Not detected	100	33	ug/L	5/7/05	5/7/05
EPA 300.0	Sulfate	423000 E	1000	90	ug/L	5/7/05	5/7/05
EPA 300.0	Sulfate	354000	5000	450	ug/L	5/7/05	5/7/05
EPA 310.1	Bicarbonate	272	5	0.787	mg/L	5/17/05	5/17/05
EPA 310.1	Carbonate	Not detected	5	0.787	mg/L	5/17/05	5/17/05

E = The reported value exceeds linear range.

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-667**

Sample Collection Date: 5/6/05

**APPL ID: AX19561**

ARF: 47392

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 23.1 Percent Moisture.)							
CLP MOIST	Moisture	23.1	2.0		%	5/9/05	5/9/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-568**

Sample Collection Date: 5/6/05

**APPL ID: AX19562**

ARF: 47392

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 17.5 Percent Moisture.)							
CLP MOIST	Moisture	17.5	2.0		%	5/9/05	5/9/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-669**

Sample Collection Date: 5/6/05

**APPL ID: AX19563**

ARF: 47392

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 22.7 Percent Moisture.)							
CLP MOIST	Moisture	22.7	2.0		%	5/9/05	5/9/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech F.W., Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski  
Project: 1990.086D WATS Bldg 88 Moffett Airfield  
Sample ID: 86-WOPT-670  
Sample Collection Date: 5/6/05

APPL ID: AX19564  
ARF: 47392

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 21.8 Percent Moisture.)							
CLP MOIST	Moisture	21.8	2.0		%	5/9/05	5/9/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-671**

Sample Collection Date: 5/6/05

**APPL ID: AX19565**

ARF: 47392

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 15.9 Percent Moisture.)							
CLP MOIST	Moisture	15.9	2.0		%	5/9/05	5/9/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-672**

Sample Collection Date: 5/6/05

**APPL ID: AX19566**

ARF: 47392

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 20.6 Percent Moisture.)							
CLP MOIST	Moisture	20.6	2.0		%	5/9/05	5/9/05

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4PPL-F1-SC-MCRes/MCPQL-REG MDLs



## Wet Lab Analysis

Tetra Tech FW, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: Lisa Bienkowski

Project: 1990.086D WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-673

Sample Collection Date: 5/6/05

APPL ID: AX19567

ARF: 47392

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 19.7 Percent Moisture.)							
CLP MOIST	Moisture	19.7	2.0		%	5/9/05	5/9/05

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APPL-F1-SC-MCRes/MCPQL-REG MDLs



May 24, 2005

Service Request No: K2503330

Robert Wise  
APPL, Inc.  
4203 W. Swift Avenue  
Fresno, CA 93722

RE: 47392

Dear Robert:

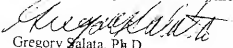
Enclosed are the results of the sample(s) submitted to our laboratory on May 10, 2005. For your reference, these analyses have been assigned our service request number K2503330.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAC standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3376.

Respectfully submitted,

Columbia Analytical Services, Inc.

  
Gregory Salata, Ph.D.  
Project Chemist

GS/jeb

Page 1 of 15

COLUMBIA ANALYTICAL SERVICES, INC.

Client: Agriculture & Priority Pollutants Labs  
Project: 47932  
Sample Matrix: Soil

Service Request No.: K2503330  
Date Received: 05/10/05

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier III validation deliverables including summary forms and all of the associated raw data for each of the analyses. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Seven soil samples were received for analysis at Columbia Analytical Services on 05/10/05. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

General Chemistry Parameters

No anomalies associated with the analysis of these samples were observed.

Approved by

Date

5/21/05

90065

## COLUMBIA ANALYTICAL SERVICES, INC.

## Analytical Report

Client: Agriculture & Priority Pollutants Labs  
 Project: 47292  
 Sample Matrix: Soil

Service Request: K2503330  
 Date Collected: 05/06/05  
 Date Received: 05/10/05

## Carbon, Total Organic

Prep Method: NONE  
 Analysis Method: Walkley Black  
 Test Notes:

Units: mg/kg (ppm)  
 Basis: Dry

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
86-WOPT-667	K2503330-001	2000	900	1	NA	05/24/05	5230	
86-WOPT-668	K2503330-002	2000	900	1	NA	05/24/05	1910	J
86-WOPT-669	K2503330-003	2000	900	1	NA	05/24/05	1720	J
86-WOPT-670	K2503330-004	2000	900	1	NA	05/24/05	1890	J
86-WOPT-671	K2503330-005	2000	900	1	NA	05/24/05	1410	J
86-WOPT-672	K2503330-006	2000	900	1	NA	05/24/05	1660	J
86-WOPT-673	K2503330-007	2000	900	1	NA	05/24/05	1600	J
Method Blank	K2503330-MB	2000	900	1	NA	05/24/05	ND	

Approved By:   
 Analyst

Date

5/12/05

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Air Field, Building 88, CTO 86

**Collection Date:** May 6, 2005

**LDC Report Date:** June 2, 2005

**Matrix:** Soil

**Parameters:** Volatiles

**Validation Level:** EPA Level III & IV

**Laboratory:** APPL, Inc.

**Sample Delivery Group (SDG):** 47392

**Sample Identification**

86-WOPT-667

86-WOPT-668

86-WOPT-669

86-WOPT-670\*\*

86-WOPT-671

86-WOPT-672

86-WOPT-673

86-WOPT-667MS

86-WOPT-667MSD

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 9 soil samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals with the following exceptions:

Sample	Compound	Total Time From BFB Tuning Until Analysis	Required Analysis Time (In Hours) From BFB Tuning Until Analysis	Flag	A or P
86-WOPT-667MSD	All TCL compounds	12 hrs. 37 mins.	12 hrs.	None	P

All ion abundance requirements were met.

## III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 15.0% for each individual compound and less than or equal to 30.0% for calibration check compounds (CCCs).

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination ( $r^2$ ) was greater than or equal to 0.990.

Average relative response factors (RRF) for all system performance check compounds (SPCCs) were within method and validation criteria.

## IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 20.0% for all compounds.

All of the continuing calibration RRF values for all system performance check compounds (SPCCs) were within method and validation criteria.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Compound	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
86-WOPT-667MS/MSD (86-WOPT-667)	1,1-Dichloroethene	41.5 (65-135)	31.2 (65-135)	-	J (all detects) UJ (all non-detects)	A
	Benzene	32.4 (65-135)	29.0 (65-135)	-		
	Chlorobenzene	21.0 (65-135)	20.4 (65-135)	-		
	Toluene	17.6 (64-135)	16.8 (64-135)	-		
	Trichloroethene	24.7 (61-135)	22.7 (61-135)	-		

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## IX. Regional Quality Assurance and Quality Control

Not applicable.

## X. Internal Standards

All internal standard areas and retention times were within QC limits with the following exceptions:

Sample	Internal Standards	Area (Limits)	Compound	Flag	A or P
86-WOPT-667	1,4-Dichlorobenzene-d4	26683 (38690-154760)	4-Methyl-2-pentanone	J (all detects) UJ (all non-detects)	A
			1,1,2,2-Tetrachloroethane	J (all detects) UJ (all non-detects)	
86-WOPT-668	1,4-Dichlorobenzene-d4	26111 (38690-154760)	4-Methyl-2-pentanone	J (all detects) UJ (all non-detects)	P
			1,1,2,2-Tetrachloroethane	J (all detects) UJ (all non-detects)	



Sample	Internal Standards	Area (Limits)	Compound	Flag	A or P
86-WOPT-669	1,4-Dichlorobenzene-d4	36966 (36690-154760)	4-Methyl-2-pentanone 1,1,2,2-Tetrachloroethane	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	P
86-WOPT-671	1,4-Dichlorobenzene-d4	35158 (36690-154760)	4-Methyl-2-pentanone 1,1,2,2-Tetrachloroethane	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	P

#### **XI. Target Compound Identifications**

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

#### **XII. Compound Quantitation and CRQLs**

All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

#### **XIII. Tentatively Identified Compounds (TICs)**

Tentatively identified compounds were not reported by the laboratory.

#### **XIV. System Performance**

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

#### **XV. Overall Assessment**

Data flags are summarized at the end of this report if data has been qualified.

#### **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

#### **XVII. Field Blanks**

No field blanks were identified in this SDG.

**Moffett Air Field, Building 88, CTO 86**  
**Volatiles - Data Qualification Summary - SDG 47392**

SDG	Sample	Compound	Flag	A or P	Reason
47392	86-WOPT-667	1,1-Dichloroethene Benzene Chlorobenzene Toluene Trichloroethene	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicates (%R)
47392	86-WOPT-667	4-Methyl-2-pentanone 1,1,2,2-Tetrachloroethane	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Internal standards (area)
47392	86-WOPT-668 86-WOPT-669 86-WOPT-671	4-Methyl-2-pentanone 1,1,2,2-Tetrachloroethane	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	P	Internal standards (area)

**Moffett Air Field, Building 88, CTO 86**  
**Volatiles - Laboratory Blank Data Qualification Summary - SDG 47392**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Air Field, Building 88, CTO 86  
**Collection Date:** May 6, 2005  
**LDC Report Date:** June 2, 2005  
**Matrix:** Water  
**Parameters:** Volatiles  
**Validation Level:** EPA Level III & IV  
**Laboratory:** APPL, Inc.  
**Sample Delivery Group (SDG):** 47392

**Sample Identification**

86-WOPT-660  
86-WOPT-661\*\*  
86-WOPT-661DL\*\*  
86-WOPT-662  
86-WOPT-662DL  
86-WOPT-663  
86-WOPT-663DL  
86-WOPT-664  
86-WOPT-664DL  
86-WOPT-665\*\*  
86-WOPT-665DL\*\*  
86-WOPT-666  
86-WOPT-666DL  
86-WOPT-663MS  
86-WOPT-663MSD

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 15 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Contract Laboratory Program Statement of Work (SOW) OLM04.2 for Volatiles.

This review follows USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999); the following subsections correlate to the above guidelines.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

### I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

### II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

### III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 30.0% for all compounds with the following exceptions:

Date	Compound	%RSD	Associated Samples	Flag	A or P
5/3/05	Acetone	64	86-WOPT-660 86-WOPT-661** 86-WOPT-662 86-WOPT-663 86-WOPT-664 86-WOPT-665** 86-WOPT-666 050507W	J (all detects) UJ (all non-defects)	A

Average relative response factors (RRF) for all volatile target compounds and system monitoring compounds were within validation criteria.

### IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 25.0% with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
5/6/05	Chloroethane	29	86-WOPT-660 86-WOPT-661** 86-WOPT-662 86-WOPT-663 86-WOPT-664 86-WOPT-665** 86-WOPT-666 050507W	J (all detects) UJ (all non-detects)	A

All of the continuing calibration RRF values were within validation criteria.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Analysis Date	Compound TIC (RT in minutes)	Concentration	Associated Samples
050507W	5/7/05	Acetone	6.7 ug/L	86-WOPT-660 86-WOPT-661** 86-WOPT-662 86-WOPT-663 86-WOPT-664 86-WOPT-665** 86-WOPT-666

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
86-WOPT-660	Acetone	7.9 ug/L	7.9U ug/L
86-WOPT-661**	Acetone	6.6 ug/L	6.6U ug/L
86-WOPT-662	Acetone	7.2 ug/L	7.2U ug/L
86-WOPT-663	Acetone	6.9 ug/L	6.9U ug/L
86-WOPT-664	Acetone	9.7 ug/L	9.7U ug/L
86-WOPT-665**	Acetone	7.8 ug/L	7.8U ug/L

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
86-WOPT-666	Acetone	8.2 ug/L	8.2U ug/L

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the SOW. All surrogate recoveries (%R) were within QC limits with the following exceptions:

Sample	Surrogate	%R (Limits)	Compound	Flag	A or P
86-WOPT-663DL	Toluene-d8	126 (75-125)	All TCL compounds	J (all detects)	A
86-WOPT-664DL	Toluene-d8	129 (75-125)	All TCL compounds	J (all detects)	A
86-WOPT-665DL**	Toluene-d8	128 (75-125)	All TCL compounds	J (all detects)	A
86-WOPT-666DL	Toluene-d8	133 (75-125)	All TCL compounds	J (all detects)	A

## VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Laboratory Control Samples (LCS)

Although laboratory control samples were not required by the method, laboratory control samples were reported by the laboratory. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## IX. Regional Quality Assurance and Quality Control

Not applicable.

## X. Internal Standards

All internal standard areas and retention times were within QC limits.

## XI. Target Compound Identifications

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
86-WOPT-661** 86-WOPT-662	cis-1,2-Dichloroethene Trichloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects)	A
86-WOPT-663 86-WOPT-664 86-WOPT-665** 86-WOPT-666	cis-1,2-Dichloroethene Trichloroethene Tetrachloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects) J (all detects)	A

Raw data were not evaluated for the samples reviewed by Level III criteria.

## XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

## XIV. System Performance

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## XV. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## XVI. Field Duplicates

Samples 86-WOPT-661\*\* and 86-WOPT-662 and samples 86-WOPT-661DL\*\* and 86-WOPT-662DL were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	86-WOPT-661**	86-WOPT-662	
1,1,1-Trichloroethane	0.66	0.80	7
1,1,2-Trichloro-1,2,2-trifluoroethane	5.1	4.4	15
1,1-Dichloroethane	14	13	7



Compound	Concentration (ug/L)		RPD
	86-WOPT-681**	86-WOPT-662	
1,1-Dichloroethene	24	21	13
Acetone	6.6	7.2	9
cis-1,2-Dichloroethene	630	620	1
Tetrachloroethene	7.3	7.2	1
trans-1,2-Dichloroethene	7.3	5.8	23
Trichloroethene	610	560	9
Vinyl chloride	2.4	2.3	4

Compound	Concentration (ug/L)		RPD
	86-WOPT-661DL**	86-WOPT-682DL	
cis-1,2-Dichloroethene	1300	1200	6
Trichloroethene	700	720	3

## XVII. Field Blanks

Sample 86-WOPT-660 was identified as a trip blank. No volatile contaminants were found in this blank with the following exceptions:

Trip Blank ID	Compound	Concentration (ug/L)
86-WOPT-660	Acetone	7.9

**Moffett Air Field, Building 88, CTO 86**  
**Volatiles - Data Qualification Summary - SDG 47392**

SDG	Sample	Compound	Flag	A or P	Reason
47392	86-WOPT-660 86-WOPT-661** 86-WOPT-662 86-WOPT-663 86-WOPT-664 86-WOPT-665** 86-WOPT-666	Acetone	J (all detects) UJ (all non-detects)	A	Initial calibration (%RSD)
47392	86-WOPT-660 86-WOPT-661** 86-WOPT-662 86-WOPT-663 86-WOPT-664 86-WOPT-665** 86-WOPT-666	Chloroethane	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
47392	86-WOPT-663DL 86-WOPT-664DL 86-WOPT-665DL** 86-WOPT-666DL	All TCL compounds	J (all detects)	A	Surrogate spikes (%R)
47392	86-WOPT-661** 86-WOPT-662	cis-1,2-Dichloroethene Trichloroethene	J (all detects) J (all detects)	A	Compound quantitation and CROLS
47392	86-WOPT-663 86-WOPT-664 86-WOPT-665** 86-WOPT-666	cis-1,2-Dichloroethene Trichloroethene Tetrachloroethene	J (all detects) J (all detects) J (all detects)	A	Compound quantitation and CRQLs

**Moffett Air Field, Building 88, CTO 86**  
**Volatiles - Laboratory Blank Data Qualification Summary - SDG 47392**

SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P
47392	86-WOPT-660	Acetone	7.9U ug/L	A
47392	86-WOPT-661**	Acetone	6.6U ug/L	A
47392	86-WOPT-662	Acetone	7.2U ug/L	A
47392	86-WOPT-663	Acetone	6.9U ug/L	A
47392	86-WOPT-664	Acetone	9.7U ug/L	A

SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P
47392	86-WOPT-665**	Acetone	7.8U ug/L	A
47392	86-WOPT-666	Acetone	8.2U ug/L	A

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Air Field, Building 88, CTO 86  
**Collection Date:** May 6, 2005  
**LDC Report Date:** June 1, 2005  
**Matrix:** Water  
**Parameters:** Metals  
**Validation Level:** EPA Level III & IV  
**Laboratory:** APPL, Inc.

**Sample Delivery Group (SDG):** 47392

**Sample Identification**

86-WOPT-661\*\*  
86-WOPT-662  
86-WOPT-663  
86-WOPT-664  
86-WOPT-665\*\*  
86-WOPT-666  
86-WOPT-661DL\*\*  
86-WOPT-662DL  
86-WOPT-663DL  
86-WOPT-664DL  
86-WOPT-665DL\*\*  
86-WOPT-666DL  
86-WOPT-663MS  
86-WOPT-663MSD

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 14 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 6010B for Metals. The metals analyzed were Calcium, Iron, Magnesium, Potassium, and Sodium.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

## III. Blanks

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Potassium	0.12 mg/L	All samples in SDG 47392

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or were significantly greater ( >5X blank contaminants) than the concentrations found in the associated method blanks.

## IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

## V. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
86-WOPT-663MS/MSD (86-WOPT-661** 86-WOPT-662 86-WOPT-663 86-WOPT-664 86-WOPT-665** 86-WOPT-666)	Magnesium Sodium Potassium	132 (80-120) 132 (80-120) -	164 (80-120) 132 (80-120) 130 (80-120)	- - -	J (all detects) J (all detects) J (all detects)	A

## VI. Duplicate Sample Analysis

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

## VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Internal Standards

ICP-MS was not utilized in this SDG.

## IX. Furnace Atomic Absorption QC

Graphite furnace atomic absorption was not utilized in this SDG.

## X. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met with the following exceptions:

Diluted Sample	Analyte	%D (Limits)	Associated Samples	Flag	A or P
86-WOPT-663L	Iron	12.0 ( $\leq 10$ )	86-WOPT-661** 86-WOPT-662 86-WOPT-663 86-WOPT-664 86-WOPT-665** 86-WOPT-666	J (all detects)	A

## XI. Sample Result Verification

All sample result verification met validation criteria with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
86-WOPT-661** 86-WOPT-662 86-WOPT-663 86-WOPT-664 86-WOPT-665** 86-WOPT-666	Calcium	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	A

Raw data were not evaluated for samples reviewed by Level III criteria.

## XII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## XIII. Field Duplicates

Samples 86-WOPT-661\*\* and 86-WOPT-662 and samples 86-WOPT-661DL\*\* and 86-WOPT-662DL were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:

Compound	Concentration (mg/L)		RPD
	86-WOPT-661**	86-WOPT-662	
Calcium	385	346	11
Iron	16.7	22.1	28
Magnesium	99.9	98.1	2
Potassium	13.1	11.2	16
Sodium	45.0	41.8	7

Compound	Concentration (mg/L)		RPD
	86-WOPT-661DL**	86-WOPT-662DL	
Calcium	397	381	4

## XIV. Field Blanks

No field blanks were identified in this SDG.



**Moffett Air Field, Building 88, CTO 86**  
**Metals - Data Qualification Summary - SDG 47392**

SDG	Sample	Analyte	Flag	A or P	Reason
47392	86-WOPT-661** 86-WOPT-662 86-WOPT-663 86-WOPT-664 86-WOPT-665** 86-WOPT-666	Magnesium Sodium Potassium	J (all detects) J (all detects) J (all detects)	A	Matrix spike/Matrix spike duplicates (%R)
47392	86-WOPT-661** 86-WOPT-662 86-WOPT-663 86-WOPT-664 86-WOPT-665** 86-WOPT-666	Iron	J (all detects)	A	ICP serial dilution (%D)
47392	86-WOPT-661** 86-WOPT-662 86-WOPT-663 86-WOPT-664 86-WOPT-665** 86-WOPT-666	Calcium	J (all detects)	A	Sample result verification

**Moffett Air Field, Building 88, CTO 86**  
**Metals - Laboratory Blank Data Qualification Summary - SDG 47392**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Moffett Air Field, Building 88, CTO 86  
**Collection Date:** May 6, 2005  
**LDC Report Date:** June 1, 2005  
**Matrix:** Soil/Water  
**Parameters:** Wet Chemistry  
**Validation Level:** EPA Level III & IV  
**Laboratory:** APPL, Inc./Columbia Analytical Services, Inc.

**Sample Delivery Group (SDG):** 47392/K2503330

**Sample Identification**

86-WOPT-661**	86-WOPT-663MSD
86-WOPT-662	86-WOPT-677DUP
86-WOPT-663	
86-WOPT-664	
86-WOPT-665**	
86-WOPT-666	
86-WOPT-667	
86-WOPT-668	
86-WOPT-669	
86-WOPT-670**	
86-WOPT-671	
86-WOPT-672	
86-WOPT-673	
86-WOPT-661DL**	
86-WOPT-662DL	
86-WOPT-663DL	
86-WOPT-664DL	
86-WOPT-665DL**	
86-WOPT-666DL	
86-WOPT-663MS	

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 8 soil samples and 14 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 300.0 for Chloride, Nitrate, Nitrite, and Sulfate, EPA Method 310.1 for Carbonate and Bicarbonate, and Walkley-Black method and EPA SW 846 Method 9060 for Total Organic Carbon.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section IX.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met with the following exceptions:

Sample	Analyte	Total Time From Sample Collection Until Analysis	Required Holding Time From Sample Collection Until Analysis	Flag	A or P
86-WOPT-663MS 86-WOPT-663MSD	Nitrite	4 days	48 hours	J (all detects) UJ (all non-detects)	A
	Nitrate	4 days	48 hours	J (all detects) UJ (all non-detects)	

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

### a. Initial Calibration

All criteria for the initial calibration of each method were met.

### b. Calibration Verification

Calibration verification frequency and analysis criteria were met for each method when applicable.

## III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the method blanks with the following exceptions:

Method Blank ID	Analyte	Concentration	Associated Samples
ICB/CCB	Chloride	2.407 mg/L	86-WOPT-661** 86-WOPT-662 86-WOPT-663 86-WOPT-664 86-WOPT-665** 86-WOPT-666

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater ( $>5X$  blank contaminants) than the concentrations found in the associated method blanks.

#### IV. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyta	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
86-WOPT-663MS/MSD (All water samples in SDG 47392/K2503330)	Sulfate	77.7 (80-120)	77.3 (80-120)	-	J (all detects) UJ (all non-detects)	A

#### V. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

#### VI. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### VII. Sample Result Verification

All sample result verification met validation criteria with the following exceptions:

Sample	Analyta	Finding	Criteria	Flag	A or P
86-WOPT-661** 86-WOPT-662 86-WOPT-663 86-WOPT-664 86-WOPT-665** 86-WOPT-666	Sulfate	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	A

Raw data were not evaluated for the samples reviewed by Level III criteria.

#### VIII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

#### IX. Field Duplicates

Samples 86-WOPT-661\*\* and 86-WOPT-662 and samples 86-WOPT-661DL\*\* and 86-WOPT-662DL were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration		RPD
	66-WOPT-661**	66-WOPT-662	
Chloride	35700 ug/L	35600 ug/L	0
Sulfate	466000 ug/L	466000 ug/L	0
Bicarbonate	303 mg/L	290 mg/L	4
Nitrate	681 ug/L	736 ug/L	6

Analyte	Concentration (ug/L)		RPD
	66-WOPT-661DL**	66-WOPT-662DL	
Sulfate	414000	417000	1

## X. Field Blanks

No field blanks were identified in this SDG.

**Moffett Air Field, Building 88, CTO 86**  
**Wet Chemistry - Data Qualification Summary - SDG 47392/K2503330**

SDG	Sample	Analyte	Flag	A or P	Reason
47392/ K2503330	86-WOPT-661** 86-WOPT-662 86-WOPT-663 86-WOPT-664 86-WOPT-665** 86-WOPT-666 86-WOPT-661DL** 86-WOPT-662DL 86-WOPT-663DL 86-WOPT-664DL 86-WOPT-665DL** 86-WOPT-666DL	Sulfate	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicates (%R)
47392/ K2503330	86-WOPT-661** 86-WOPT-662 86-WOPT-663 86-WOPT-664 86-WOPT-665** 86-WOPT-666	Sulfate	J (all detects)	A	Sample result verification

**Moffett Air Field, Building 88, CTO 86**  
**Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG**  
**47392/K2503330**

No Sample Data Qualified in this SDG



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NUMBER 10449

# CHAIN-OF-CUSTODY RECORD

PROJECT NAME <b>Building 88</b>		PURCHASE ORDER NO. <b>055359</b>		ANALYSES REQUIRED								LABORATORY NAME <b>Nimpo &amp; More</b>	
PROJECT LOCATION <b>Moffett Field, Ca</b>		PROJECT NO. <b>P90-086P</b>		<div style="display: flex; align-items: center;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg); border: 1px solid black; padding: 2px;"> <b>Gravel - ASTM D618-03</b>  <b>D422-63</b> </div> <div style="flex-grow: 1; border-left: 1px solid black; border-right: 1px solid black; position: relative;"> <div style="position: absolute; top: 0; right: 0; width: 100%; height: 100%; border-top: 1px solid black; border-right: 1px solid black;"></div> </div> </div>								LABORATORY ID (FOR LABORATORY)	
SAMPLER NAME <b>Wiley</b>		AIRBILL NUMBER <b>Carrier</b>										LABORATORY ID (FOR LABORATORY)	
PROJECT CONTACT <b>Lynn Jefferson</b>		PROJECT CONTACT PHONE NUMBER <b>949-756-7558</b>										COMMENTS	
SAMPLE ID	DATE COLLECTED	TIME COLLECTED	NO. OF CONTAINER	LEVEL	T	T	T	T	T	T	T	T	T
				3	4	5	6	7	8	9	10	11	12
<b>86-WOPT-302</b>	<b>4/6/05</b>	<b>1054</b>	<b>1</b>	<b>-</b>	<b>S</b>	<b>-</b>	<b>X</b>						
<b>86-WOPT-303</b>	<b>4/6/05</b>	<b>1100</b>	<b>1</b>	<b>-</b>	<b>S</b>	<b>-</b>	<b>X</b>						
<b>86-WOPT-304</b>	<b>4/6/05</b>	<b>1253</b>	<b>1</b>	<b>-</b>	<b>S</b>	<b>-</b>	<b>X</b>						
<b>86-WOPT-320</b>	<b>4/11/05</b>	<b>0810</b>	<b>1</b>	<b>-</b>	<b>S</b>	<b>-</b>	<b>X</b>						
<b>86-WOPT-321</b>	<b>4/11/05</b>	<b>0830</b>	<b>1</b>	<b>-</b>	<b>S</b>	<b>-</b>	<b>X</b>						
<b>86-WOPT-330</b>	<b>4/11/05</b>	<b>0845</b>	<b>1</b>	<b>-</b>	<b>S</b>	<b>-</b>	<b>X</b>						
<b>86-WOPT-331</b>	<b>4/11/05</b>	<b>0755</b>	<b>1</b>	<b>-</b>	<b>S</b>	<b>-</b>	<b>X</b>						
<b>86-WOPT-339</b>	<b>4/11/05</b>	<b>0906</b>	<b>1</b>	<b>-</b>	<b>S</b>	<b>-</b>	<b>X</b>						
<b>86-WOPT-340</b>	<b>4/11/05</b>	<b>0945</b>	<b>1</b>	<b>-</b>	<b>S</b>	<b>-</b>	<b>X</b>						
<b>86-WOPT-348</b>	<b>4/11/05</b>	<b>1153</b>	<b>1</b>	<b>-</b>	<b>S</b>	<b>-</b>	<b>X</b>						
RELINQUISHED BY (Signature) <b>Wiley</b>	DATE <b>4/11/05</b>	RECEIVED BY (Signature) <b>TO FEDX</b>		LABORATORY INSTRUCTIONS/COMMENTS									
COMPANY <b>TFW</b>	TIME <b>1100</b>	COMPANY		COMPOSITE DESCRIPTION									
RELINQUISHED BY (Signature)	DATE	RECEIVED BY (Signature)		SAMPLE CONDITION UPON RECEIPT (FOR LABORATORY)									
COMPANY	TIME	COMPANY		TEMPERATURE: SAMPLE CONDITION: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN									
RELINQUISHED BY (Signature)	DATE	RECEIVED BY (Signature)		COOLER SEAL: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN									
COMPANY	TIME	COMPANY											

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management





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1230 Columbia Street, Suite 500  
San Diego, CA 92101 (619) 234-8696

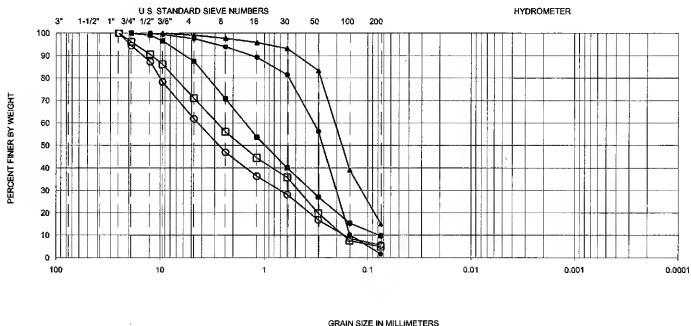
NUMBER 10350

# CHAIN-OF-CUSTODY RECORD

PROJECT NAME <b>Building 88</b>		PURCHASE ORDER NO. <b>055359</b>		ANALYSES REQUIRED								LABORATORY NAME <b>Ninoy-Hox</b>	
PROJECT LOCATION		PROJECT NO. <b>1990 0860</b>		<div style="display: flex; align-items: center;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);"> <b>651813-05-05m</b>  <b>D122-603</b> </div> <div style="margin-left: 20px;"> <b>UB</b> </div> </div>								LABORATORY ID (FOR LABORATORY)	
SAMPLER NAME		AIRBILL NUMBER <b>Courier</b>										LABORATORY ID (FOR LABORATORY)	
PROJECT CONTACT <b>Lynn Jefferson</b>		PROJECT CONTACT PHONE NUMBER <b>949-756-7558</b>										COMMENTS	
SAMPLE ID	DATE COLLECTED	TIME COLLECTED	NO OF CONTAINER	LEVEL 3 4	T T A T								
<b>86-WOFT-349</b>	<b>4/8/05</b>	<b>11:45</b>	<b>1</b>	<b>1</b>	<b>1</b>							<b>X</b>	
<b>86-WOFT-350</b>	<b>4/8/05</b>	<b>12:20</b>	<b>1</b>	<b>1</b>	<b>1</b>							<b>X</b>	
<div style="display: flex; align-items: center;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);"> <b>UB</b> </div> <div style="margin-left: 20px;"> <b>4/8/05</b> </div> </div>													
<div style="display: flex; align-items: center;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);"> <b>UB</b> </div> <div style="margin-left: 20px;"> <b>4/8/05</b> </div> </div>													
RELINQUISHED BY (Signature) <b>TFW</b>		DATE <b>4/8/05</b>		RECEIVED BY (Signature) <b>TO FFW</b>		LABORATORY INSTRUCTIONS/COMMENTS							
COMPANY		TIME		COMPANY									
RELINQUISHED BY (Signature)		DATE		RECEIVED BY (Signature)		COMPOSITE DESCRIPTION							
COMPANY		TIME		COMPANY									
RELINQUISHED BY (Signature)		DATE		RECEIVED BY (Signature)		SAMPLE CONDITION UPON RECEIPT (FOR LABORATORY)							
COMPANY		TIME		COMPANY		TEMPERATURE: _____ SAMPLE CONDITION: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN COOLER SEAL: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN							

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management

GRAVEL		SAND			FINES
Coarse	Fine	Coarse	Medium	Fine	Silt & Clay



Symbol	Sample ID	Sample Depth (feet)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	D <sub>10</sub> (mm)	D <sub>30</sub> (mm)	D <sub>60</sub> (mm)	C <sub>u</sub>	C <sub>c</sub>	Passing No. 200 (%)	U.S.C.S
●	86-WOPT-303		—	—	—	0.148	0.21	0.34	2	1	2	
■	86-WOPT-304		—	—	—	0.078	0.37	1.62	21	1	10	
▲	86-WOPT-321		—	—	—	—	0.12	0.22	—	—	15	
○	86-WOPT-339		—	—	—	0.175	0.73	4.4	25	1	6	
□	86-WOPT-349		—	—	—	0.179	0.49	3.0	17	0	5	
△												

PERFORMED IN GENERAL ACCORDANCE WITH ASTM C 136

**Ningo & Moore**

## GRADATION TEST RESULTS

### TETRA TECH FW

PROJECT NO.

400700003

DATE

5/2005

FIGURE



## SIEVE ANALYSIS TEST DATA

PROJECT NAME:	TETRA TECH FW		
PROJECT NUMBER:	400700003	DATE:	04/21/05
LOCATION: 86-WOPT-303	DEPTH:	TECH:	OAA

	TOTAL SAMPLE		FINE FRACTION			MOISTURE SAMPLE	
	BEFORE WASH	AFTER WASH	BEFORE WASH	AFTER WASH		TOTAL SAMPLE	FINE FRACTION
PAN IDENTIFICATION					PAN IDENTIFICATION		
PAN TARE	187.1				PAN TARE	191.28	
WGHT MOIST SOIL + TARE	620.04	<div style="text-align: center;">X</div>		<div style="text-align: center;">X</div>	WGHT MOIST SOIL + TARE	699.48	
WGHT DRY SOIL + TARE				405.03	WGHT DRY SOIL + TARE	684.69	
WEIGHT OVEN-DRY SOIL	420.3402704	10.13	410.21	405.03	MOISTURE CONTENT	3.0%	

SIEVE	OPENING SIZE (mm)	INDIVIDUAL WEIGHT RETAINED	CUMULATIVE WEIGHT RETAINED	CUMULATIVE PERCENT RETAINED	CUMULATIVE PERCENT PASSING	COMBINED CUMULATIVE PERCENT PASSING	COMBINED INDIVIDUAL PERCENT RETAINED
3"	75						
2"	50						
1-1/2"	37.5						
1"	25.0						
3/4"	19.0						
1/2"	12.5		0	0.0%	100.0%	100.0%	0.0%
3/8"	9.5		2.36	0.6%	99.4%	99.4%	0.6%
#4	4.75		10.13	2.4%	97.6%	97.6%	1.8%
PAN	-		10.13	PERCENT ERROR:			0.00%
#8	2.36		15.31	3.7%	96.3%	93.9%	3.6%
#16	1.18		35.04	8.5%	91.5%	89.3%	4.7%
#30	0.600		67.59	16.5%	83.5%	81.5%	7.7%
#50	0.300		173.71	42.3%	57.7%	56.3%	25.2%
#100	0.150		367.24	89.5%	10.5%	10.2%	46.0%
#200	0.075		403.2	98.3%	1.7%	1.7%	8.6%
PAN	-		405.03	PERCENT ERROR:			0.00%

D10 (mm):	0.148	D30 (mm):	0.214	D60 (mm):	0.344	Cu ( ):	2.3	Cc ( ):	0.9
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### SIEVE ANALYSIS TEST DATA

PROJECT NAME: TETRA TECH FW

PROJECT NUMBER: 400700003

DATE: 04/21/05

LOCATION:	86-WOPT-304	DEPTH:
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TECH: OAA

	TOTAL SAMPLE		FINE FRACTION			MOISTURE SAMPLE	
	BEFORE WASH	AFTER WASH	BEFORE WASH	AFTER WASH		TOTAL SAMPLE	FINE FRACTION
PAN IDENTIFICATION					PAN IDENTIFICATION		
PAN TARE	194.5				PAN TARE	194.5	
WGHT MOIST SOIL + TARE	740.91				WGHT MOIST SOIL + TARE	740.91	
WGHT DRY SOIL + TARE				422.32	WGHT DRY SOIL + TARE	732.51	
WEIGHT OVEN-DRY SOIL	538.01	67.31	470.70	422.32	MOISTURE CONTENT	1.6%	

SIEVE	OPENING SIZE (mm)	INDIVIDUAL WEIGHT RETAINED	CUMULATIVE WEIGHT RETAINED	CUMULATIVE PERCENT RETAINED	CUMULATIVE PERCENT PASSING	COMBINED CUMULATIVE PERCENT PASSING	COMBINED INDIVIDUAL PERCENT RETAINED
3"	75						
2"	50						
1-1/2"	37.5						
1"	25.0						
3/4"	19.0		0	0.0%	100.0%	100.0%	0.0%
1/2"	12.5		4.8	0.9%	99.1%	99.1%	0.9%
3/8"	9.5		18.23	3.4%	96.6%	96.6%	2.5%
#4	4.75		67.31	12.5%	87.5%	87.5%	9.1%
PAN	--		67.31	PERCENT ERROR:			0.00%
#8	2.36		89.8	19.1%	80.9%	70.8%	16.7%
#16	1.18		181.91	38.6%	61.4%	53.7%	17.1%
#30	0.600		255.1	54.2%	45.8%	40.1%	13.6%
#50	0.300		324.91	69.0%	31.0%	27.1%	13.0%
#100	0.150		387.74	82.4%	17.6%	15.4%	11.7%
#200	0.075		418.27	88.9%	11.1%	9.7%	5.7%
PAN	--		422.32	PERCENT ERROR:			0.00%

D10 (mm):	0.078	D30 (mm):	0.367	D60 (mm):	1.616	Cu ( %):	20.6	Cc ( %):	1.1
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## SIEVE ANALYSIS TEST DATA

PROJECT NAME:	TETRA TECH FW		
PROJECT NUMBER:	400700003	DATE:	04/21/05
LOCATION: 86-WOPT-321	DEPTH:	TECH:	OAA

	TOTAL SAMPLE		FINE FRACTION			MOISTURE SAMPLE	
	BEFORE WASH	AFTER WASH	BEFORE WASH	AFTER WASH		TOTAL SAMPLE	FINE FRACTION
PAN IDENTIFICATION					PAN IDENTIFICATION		
PAN TARE	191.28				PAN TARE	191.28	
WGHT MOIST SOIL + TARE	699.48				WGHT MOIST SOIL + TARE	699.48	
WGHT DRY SOIL + TARE				424.92	WGHT DRY SOIL + TARE	684.99	
WEIGHT OVEN-DRY SOIL	493.41	4.18	489.23	424.92	MOISTURE CONTENT	3.0%	

SIEVE	OPENING SIZE (mm)	INDIVIDUAL WEIGHT RETAINED	CUMULATIVE WEIGHT RETAINED	CUMULATIVE PERCENT RETAINED	CUMULATIVE PERCENT PASSING	COMBINED CUMULATIVE PERCENT PASSING	COMBINED INDIVIDUAL PERCENT RETAINED
3"	75						
2"	50						
1-1/2"	37.5						
1"	25.0						
3/4"	19.0						
1/2"	12.5						
3/8"	9.5		0	0.0%	100.0%	100.0%	0.0%
#4	4.75		4.18	0.8%	99.2%	99.2%	0.8%
PAN	--		4.18	PERCENT ERROR:			0.00%
#8	2.36		7.14	1.5%	98.5%	97.7%	1.4%
#16	1.18		16.2	3.3%	96.7%	95.9%	1.8%
#30	0.600		29.68	6.1%	93.9%	93.1%	2.7%
#50	0.300		78.06	16.0%	84.0%	83.3%	9.8%
#100	0.150		296.08	60.5%	39.5%	39.1%	44.2%
#200	0.075		414.67	84.8%	15.2%	15.1%	24.0%
PAN	--		424.92	PERCENT ERROR:			0.00%

D10 (mm):	--	D30 (mm):	0.121	D60 (mm):	0.221	Cu ( ):	--	Cc ( ):	--
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## SIEVE ANALYSIS TEST DATA

PROJECT NAME:	TETRA TECH FW		
PROJECT NUMBER:	400700003	DATE:	04/21/05
LOCATION: 86-WOPT-339	DEPTH:	TECH:	OAA

	TOTAL SAMPLE		FINE FRACTION			MOISTURE SAMPLE	
	BEFORE WASH	AFTER WASH	BEFORE WASH	AFTER WASH		TOTAL SAMPLE	FINE FRACTION
PAN IDENTIFICATION					PAN IDENTIFICATION		
PAN TARE	187.24				PAN TARE	187.24	
WGHT MOIST SOIL + TARE	1679.34				WGHT MOIST SOIL + TARE	1679.34	
WGHT DRY SOIL + TARE				829.53	WGHT DRY SOIL + TARE	1652.18	
WEIGHT OVEN-DRY SOIL	1464.94	558.49	906.45	829.53	MOISTURE CONTENT	1.0%	

SIEVE	OPENING SIZE (mm)	INDIVIDUAL WEIGHT RETAINED	CUMULATIVE WEIGHT RETAINED	CUMULATIVE PERCENT RETAINED	CUMULATIVE PERCENT PASSING	COMBINED CUMULATIVE PERCENT PASSING	COMBINED INDIVIDUAL PERCENT RETAINED
3"	75						
2"	50						
1-1/2"	37.5						
1"	25.0		0	0.0%	100.0%	100.0%	0.0%
3/4"	19.0		81.47	5.6%	94.4%	94.4%	5.6%
1/2"	12.5		186.98	12.8%	87.2%	87.2%	7.2%
3/8"	9.5		317.85	21.7%	78.3%	78.3%	8.9%
#4	4.75		558.49	38.1%	61.9%	61.9%	16.4%
PAN	--			PERCENT ERROR:			
#8	2.36		218.46	24.1%	75.9%	47.0%	14.9%
#16	1.18		373.55	41.2%	58.8%	36.4%	10.6%
#30	0.600		493.63	54.5%	45.5%	28.2%	8.2%
#50	0.300		660.53	72.9%	27.1%	16.8%	11.4%
#100	0.150		779.86	86.0%	14.0%	8.6%	8.1%
#200	0.075		824.57	91.0%	9.0%	5.6%	3.1%
PAN	--		829.53	PERCENT ERROR:			

D10 (mm):	0.175	D30 (mm):	0.729	D60 (mm):	4.449	Cu ( ):	25.4	Cc ( ):	0.7
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## SIEVE ANALYSIS TEST DATA

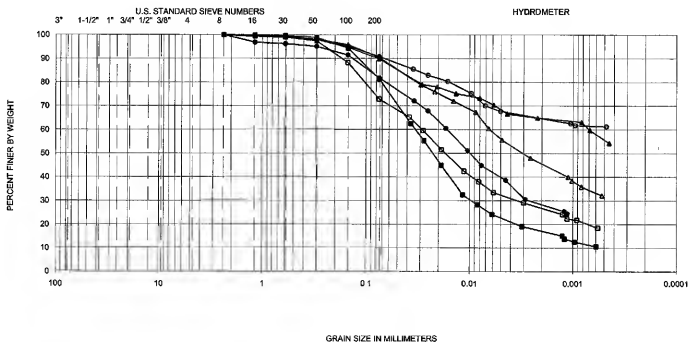
PROJECT NAME:	TETRA TECH FW		
PROJECT NUMBER:	400700003	DATE:	04/21/05
LOCATION: 86-WOPT-349	DEPTH:	TECH:	OAA

	TOTAL SAMPLE		FINE FRACTION			MOISTURE SAMPLE	
	BEFORE WASH	AFTER WASH	BEFORE WASH	AFTER WASH		TOTAL SAMPLE	FINE FRACTION
PAN IDENTIFICATION					PAN IDENTIFICATION		
PAN TARE	444.7				PAN TARE	444.7	
WGHT MOIST SOIL + TARE	3801.3				WGHT MOIST SOIL + TARE	3801.3	
WGHT DRY SOIL + TARE				2160.6	WGHT DRY SOIL + TARE	3700.7	
WEIGHT OVEN-DRY SOIL	3256.00	943.1	2312.90	2160.6	MOISTURE CONTENT	3.1%	

SIEVE	OPENING SIZE (mm)	INDIVIDUAL WEIGHT RETAINED	CUMULATIVE WEIGHT RETAINED	CUMULATIVE PERCENT RETAINED	CUMULATIVE PERCENT PASSING	COMBINED CUMULATIVE PERCENT PASSING	COMBINED INDIVIDUAL PERCENT RETAINED
3"	75						
2"	50						
1-1/2"	37.5						
1"	25.0		0	0.0%	100.0%	100.0%	0.0%
3/4"	19.0		128.1	3.9%	96.1%	96.1%	3.9%
1/2"	12.5		308.9	9.5%	90.5%	90.5%	5.6%
3/8"	9.5		451.6	13.9%	86.1%	86.1%	4.4%
#4	4.75		943.1	29.0%	71.0%	71.0%	15.1%
PAN	--		943.1		PERCENT ERROR:		0.00%
#8	2.36		487.2	21.1%	78.9%	56.1%	15.0%
#16	1.18		865.2	37.4%	62.6%	44.5%	11.6%
#30	0.600		1147.4	49.6%	50.4%	35.8%	8.7%
#50	0.300		1669.5	72.2%	27.8%	19.8%	16.0%
#100	0.150		2064.1	89.2%	10.8%	7.6%	12.1%
#200	0.075		2152	93.0%	7.0%	4.9%	2.7%
PAN	--		2160.6		PERCENT ERROR:		0.00%

D10 (mm):	0.179	D30 (mm):	0.492	D60 (mm):	2.987	Cu ( ):	16.7	Cc ( ):	0.5
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GRAVEL		SAND			FINES	
Coarse	Fine	Coarse	Medium	Fine	Silt & Clay	



Symbol	Sample ID	Sample Depth	Liquid Limit	Plastic Limit	Plasticity Index	D <sub>10</sub>	D <sub>30</sub>	D <sub>90</sub>	C <sub>u</sub>	C <sub>c</sub>	Passing No. 200 (%)	U.S.C.S
●	86-WOPT-302		--	--	--	N/A	0.00	0.0	N/A	N/A	82	
■	86-WOPT-320		--	--	--	N/A	0.01	0.0	N/A	N/A	81	
▲	86-WOPT-330		--	--	--	N/A	N/A	0.0	N/A	N/A	90	
○	86-WOPT-338		--	--	--	N/A	N/A	N/A	N/A	N/A	91	
□	86-WOPT-340		--	--	--	N/A	0.00	0.0	N/A	N/A	73	
△	86-WOPT-348		--	--	--	N/A	N/A	0.0	N/A	N/A	90	

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 422

**Ningo & Moore**

## GRADATION TEST RESULTS TETRA TECH FW

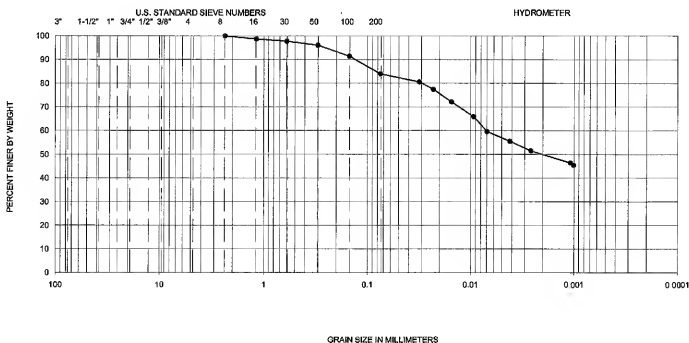
PROJECT NO.  
400700003

DATE  
5/2005

FIGURE



GRAVEL		SAND			FINES	
Coarse	Fine	Coarse	Medium	Fine	Silt & Clay	



Symbol	Sample ID	Sample Depth	Liquid Limit	Plastic Limit	Plasticity Index	D <sub>10</sub>	D <sub>30</sub>	D <sub>60</sub>	C <sub>u</sub>	C <sub>c</sub>	Passing No. 200 (%)	U.S.C.S
●	86-WOPT-350		—	—	—	N/A	N/A	0.0	N/A	N/A	84	
■												
▲												
○												
□												
△												

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 422

**Ninyo & Moore**

## GRADATION TEST RESULTS

### TETRA TECH FW

PROJECT NO.

400700003

DATE

5/2005

FIGURE







## HYDROMETER ANALYSIS TEST DATA

Ninyo & Moore				HYDROMETER ANALYSIS TEST DATA						TETRA TECH FW			
PROJECT NAME:				PROJECT NUMBER:				TECH:					
SAMPLE LOCATION:				86-WOPT-338				FLT					
SAMPLE DEPTH:				DATE:				5/4/05					
COARSE FRACTION (RETAINED ON NO. 10) SIEVE ANALYSIS				SIEVE ANALYSIS ON HYDROMETER SAMPLE									
Weight Total Sample	Moist	Dry	Sieve	Opening Size (mm)	Cumulative Weight Retained	Percent Retained	Percent Passing	Sieve	Opening Size (mm)	Cumulative Weight Retained	Percent Retained	Corrected Percent Passing	
Weight Retained No. 10	65.79	63.06											
Weight Hydrometer Soil	65.79	63.06	3 in.	75				No. 16	1.18	0.27	0.4%	99.6%	
Moisture Sample + Can	626.16	608.01	2 in.	50				No. 30	0.6	0.51	0.8%	99.2%	
Can tare	189.08		1-1/2 in.	37.5				No. 50	0.3	1.14	1.8%	98.2%	
Hygroscopic moisture	4.3%		1 in.	25				No. 100	0.15	2.99	4.7%	95.3%	
% Passing No. 10	100.0%		3/4 in.	19				No. 200	0.075	5.80	9.2%	90.8%	
GRADATION TEST RESULTS													
D10:		Cu:	3/8 in.	9.5				Hydrometer Type					151H
D30:		Cd:	No. 4	4.75				Meniscus Correction					0.0005
D60:		USCS:	No. 8	2.36	0.00	0.0%	100.0%	Specific Gravity Solids, G					2.65
Date of Reading	Time of Reading (24hr)	Elapsed Time, t (min)	Water Temperature (C)	Actual Hydrometer Reading, Ra	Composite Correction	Hydrometer Reading With Composite Correction	Percent Finer	Hydr Rtg Corrected Only for Meniscus, R	Submerged Distance, L (mm)	L/t	K	Particle Size, D (mm)	Corrected Percent Finer
5/4	11:00	0											
		1	22.9	1.0350	0.0014	1.0336	85.5%	1.0355	69.0	69.046	0.004212	0.03500	85.5%
		2	22.9	1.0340	0.0014	1.0326	82.9%	1.0345	71.7	35.846	0.004212	0.05222	82.9%
		5	22.9	1.0330	0.0014	1.0316	80.4%	1.0335	74.3	14.867	0.004212	0.01624	80.4%
		15	22.9	1.0310	0.0014	1.0296	75.3%	1.0315	79.6	5.308	0.004212	0.00670	75.3%
		30	22.7	1.0290	0.0015	1.0275	70.1%	1.0295	84.9	2.831	0.004212	0.00709	70.1%
		60	23.1	1.0280	0.0014	1.0266	67.7%	1.0285	87.6	1.459	0.004165	0.00503	67.7%
		1440	23.0	1.0260	0.0014	1.0246	62.6%	1.0265	92.9	0.064	0.004165	0.00106	62.6%
5/5	16:38	1778	23.9	1.0255	0.0012	1.0243	61.8%	1.0260	94.2	0.053	0.004165	0.00096	61.8%
5/9	9:42	7122	23.0	1.0255	0.0014	1.0241	61.3%	1.0260	94.2	0.013	0.004165	0.00048	61.3%



## HYDROMETER ANALYSIS TEST DATA

HYDROMETER ANALYSIS TEST DATA										TETRA TECH FW			
PROJECT NAME:										400700003			
PROJECT NUMBER:										86-WOPT-348			
SAMPLE LOCATION:										TECH:			
SAMPLE DEPTH:										DATE:			
SIEVE ANALYSIS ON HYDROMETER SAMPLE										SIEVE ANALYSIS ON HYDROMETER SAMPLE			
Weight Total Sample	Moist	Dry	Sieve	Opening Size (mm)	Cumulative Weight Retained	Percent Retained	Percent Passing	Sieve	Opening Size (mm)	Cumulative Weight Retained	Percent Retained	Corrected Percent Passing	
Weight Retained No. 10	84.93	82.67	3 in.	75				No. 16	1.18	0.48	0.6%	99.4%	
Moisture Sample + Can	827.92	810.76	2 in.	50				No. 30	0.6	0.82	1.0%	99.0%	
Can tare	183.85		1-1/2 in.	37.5				No. 50	0.3	1.60	1.9%	98.1%	
Hygroscopic moisture	2.7%		1 in.	25				No. 100	0.15	3.39	4.1%	95.9%	
% Passing No. 10	100.0%		3/4 in.	19				No. 200	0.075	7.94	9.6%	90.4%	
GRADATION TEST RESULTS										Hydrometer Type			
D10:			Cu:	12.5						15H			
D30:			Cd:	9.5						Meniscus Correction			
D60:			USCS:	4.75						Specific Gravity Solids, G			
Date of Reading (24hr)				2.36						Constant a			
5/4	11:40	0		0.00						1			
HYDROMETER ANALYSIS TEST DATA										Corrected Percent Finer			
Time of Reading (24hr)	Elapsed Time, t (min)	Water Temperature (C)	Actual Hydrometer Reading, Ra	Composite Correction	Hydrometer Reading With Composite Correction	Percent Finer	Hydr Rdg Corrected Only for Meniscus, R	Submerged Distance, L (mm)	L/t	K	Particle Size, D (mm)	Corrected Percent Finer	
1	23.1	1.0420	0.0014	0.0014	1.0406	78.9%	1.0425	50.5	50.530	0.004165	0.02961	78.9%	
2	23.1	1.0405	0.0014	0.0014	1.0391	76.0%	1.0410	54.5	27.249	0.004165	0.02174	76.0%	
5	23.1	1.0385	0.0014	0.0014	1.0371	72.1%	1.0390	59.8	11.958	0.004165	0.01440	72.1%	
15	23.3	1.0360	0.0014	0.0014	1.0346	67.3%	1.0365	66.4	4.427	0.004165	0.00676	67.3%	
30	23.3	1.0325	0.0014	0.0014	1.0311	60.5%	1.0330	75.7	2.522	0.004165	0.00661	60.5%	
60	23.3	1.0300	0.0014	0.0014	1.0286	55.6%	1.0305	82.3	1.371	0.004165	0.00488	55.6%	
240	23.4	1.0260	0.0013	0.0013	1.0247	47.9%	1.0265	92.9	0.387	0.004165	0.00259	47.9%	
1440	23.0	1.0220	0.0014	0.0014	1.0206	40.0%	1.0225	103.4	0.072	0.004165	0.00112	40.0%	
5/5	17:01	1.0210	0.0012	0.0012	1.0198	38.4%	1.0215	106.1	0.060	0.004165	0.00102	38.4%	
5/6	10:23	1.0200	0.0015	0.0015	1.0185	35.9%	1.0205	108.7	0.039	0.004212	0.00083	35.9%	
5/9	9:50	1.0180	0.0014	0.0014	1.0166	32.2%	1.0185	114.0	0.016	0.004165	0.00053	32.2%	







1210 Columbia Street, Suite 500  
San Diego, CA 92103 (619) 234-8696

## NUMBER

10822

PROJECT NAME		PERMITS/ORDER NO.		PROJECT NO.		AIRTEL NUMBER		PROJECT CONTACT		PROJECT CONTAMPT PRIME NUMBER		LABORATORY NAME		ANALYSES REQUIRED		LABORATORY ID FOR LABORATORY		COMMENTS		LOCATION		DEPTH		OR			
PROJECT LOCATION		DATE COLLECTED		NO OF CONTAINER		LEVEL		T		T		T		T		T		T		T		T		T			
SAMPLER NAME		DATE COLLECTED		NO OF CONTAINER		LEVEL		T		T		T		T		T		T		T		T		T			
PROJECT CONTACT		DATE COLLECTED		NO OF CONTAINER		LEVEL		T		T		T		T		T		T		T		T		T			
WATTS COMMUNICATION		55432		PROJECT NO.		1990 0868		AIRTEL NUMBER		OWNER		PROJECT CONTACT		1990 0868		LABORATORY ID FOR LABORATORY		43287		COMMENTS		Top Block		1990		OR	
Moulton Field, IA		55432		PROJECT NO.		1990 0868		AIRTEL NUMBER		OWNER		PROJECT CONTACT		1990 0868		LABORATORY ID FOR LABORATORY		43287		COMMENTS		W88-2		1990		OR	
SAMPLER NAME		DATE COLLECTED		NO OF CONTAINER		LEVEL		T		T		T		T		T		T		T		T		T		OR	
WATTS COMMUNICATION		55432		PROJECT NO.		1990 0868		AIRTEL NUMBER		OWNER		PROJECT CONTACT		1990 0868		LABORATORY ID FOR LABORATORY		43287		COMMENTS		W88-3		1990		OR	
Moulton Field, IA		55432		PROJECT NO.		1990 0868		AIRTEL NUMBER		OWNER		PROJECT CONTACT		1990 0868		LABORATORY ID FOR LABORATORY		43287		COMMENTS		W88-1		1990		OR	
SAMPLER NAME		DATE COLLECTED		NO OF CONTAINER		LEVEL		T		T		T		T		T		T		T		T		T		OR	
WATTS COMMUNICATION		55432		PROJECT NO.		1990 0868		AIRTEL NUMBER		OWNER		PROJECT CONTACT		1990 0868		LABORATORY ID FOR LABORATORY		43287		COMMENTS		W88-1		1990		OR	
Moulton Field, IA		55432		PROJECT NO.		1990 0868		AIRTEL NUMBER		OWNER		PROJECT CONTACT		1990 0868		LABORATORY ID FOR LABORATORY		43287		COMMENTS		W88-1		1990		OR	
SAMPLER NAME		DATE COLLECTED		NO OF CONTAINER		LEVEL		T		T		T		T		T		T		T		T		T		OR	
WATTS COMMUNICATION		55432		PROJECT NO.		1990 0868		AIRTEL NUMBER		OWNER		PROJECT CONTACT		1990 0868		LABORATORY ID FOR LABORATORY		43287		COMMENTS		W88-1		1990		OR	
Moulton Field, IA		55432		PROJECT NO.		1990 0868		AIRTEL NUMBER		OWNER		PROJECT CONTACT		1990 0868		LABORATORY ID FOR LABORATORY		43287		COMMENTS		W88-1		1990		OR	
SAMPLER NAME		DATE COLLECTED		NO OF CONTAINER		LEVEL		T		T		T		T		T		T		T		T		T		OR	
WATTS COMMUNICATION		55432		PROJECT NO.		1990 0868		AIRTEL NUMBER		OWNER		PROJECT CONTACT		1990 0868		LABORATORY ID FOR LABORATORY		43287		COMMENTS		W88-1		1990		OR	
Moulton Field, IA		55432		PROJECT NO.		1990 0868		AIRTEL NUMBER		OWNER		PROJECT CONTACT		1990 0868		LABORATORY ID FOR LABORATORY		43287		COMMENTS		W88-1		1990		OR	
SAMPLER NAME		DATE COLLECTED		NO OF CONTAINER		LEVEL		T		T		T		T		T		T		T		T		T		OR	
WATTS COMMUNICATION		55432		PROJECT NO.		1990 0868		AIRTEL NUMBER		OWNER		PROJECT CONTACT		1990 0868		LABORATORY ID FOR LABORATORY		43287		COMMENTS		W88-1		1990		OR	
Moulton Field, IA		55432		PROJECT NO.		1990 0868		AIRTEL NUMBER		OWNER		PROJECT CONTACT		1990 0868		LABORATORY ID FOR LABORATORY		43287		COMMENTS		W88-1		1990		OR	
SAMPLER NAME		DATE COLLECTED		NO OF CONTAINER		LEVEL		T		T		T		T		T		T		T		T		T		OR	
WATTS COMMUNICATION		55432		PROJECT NO.		1990 0868		AIRTEL NUMBER		OWNER		PROJECT CONTACT		1990 0868		LABORATORY ID FOR LABORATORY		43287		COMMENTS		W88-1		1990		OR	

White - Laboratory, Pink - Laboratory, Canary - Project File, Manda - Cash Management



## CLP Volatiles Volatile Organic Analysis Case Narrative

ARF: 48287

Project: 1990.086B WATS Bldg 88 Moffett Airfield

State Certification Number: CA1312

Results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

### Sample Receipt Information:

The sample group was received August 22, 2005, at 3.0°C. The samples were assigned Analytical Request Form (ARF) number 48287. The sample numbers and requested analysis were compared to the chain of custody. No exception was noted.

Sample Table

CLIENT ID	APPL ID	Matrix	Date Sampled	Date Received
86-WOPT-145	AX24863	WATER	8/22/05	8/22/05
86-WOPT-141	AX24864	WATER	8/22/05	8/22/05
86-WOPT-142	AX24865	WATER	8/22/05	8/22/05
86-WOPT-143	AX24866	WATER	8/22/05	8/22/05
86-WOPT-144	AX24867	WATER	8/22/05	8/22/05

### Sample Preparation:

The samples were purged according CLP. All holding times were met.

### Sample Analysis Information:

The samples were analyzed according to the method using a Hewlett Packard Gas Chromatograph with a mass spectrometer detector. The sample pH was taken after analysis. The water sample had a pH of 2. Samples 86-WOPT-143 and 86-WOPT-144 were initially analyzed at a dilution factor of 500 and 200. The samples were re-analyzed at a dilution factor of 50 within hold time. These samples could not be analyzed undiluted due to the high concentration of cis-1,2-Dichloroethene. Only the dilution factor of 50 and 200 are reported for these two samples.

### Quality Control/Assurance

#### Calibrations:

Initial and continuing calibrations were performed according to the method. All calibration criteria were met.

**Blanks:**

Methylene Chloride recovered above the  $0.5\mu\text{g/L}$  reporting limit at  $0.69\mu\text{g/L}$  for the method blank (Batch ID: 050824BC). Methylene Chloride was not detected in any of the associated samples. No other target analyte was detected above the reporting limits in the method blanks.

**Spikes:**

Laboratory Control Spikes (LCS/LCSD) were used for quality assurance. A second-source standard was used for the LCS. All spike and second-source criteria were met. All recoveries were within acceptable limits.

No sample was designated by the client for MS/MSD analysis.

**Surrogates**

All surrogate recoveries were within control limits.

**Tuning:**

The instrument was tuned using BFB. All method criteria were met.

**Internal Standards:**


The internal standard area counts were compared to the continuing calibration according to CLP. All method criteria were met.

**Summary:**

No additional problem was encountered.

**CERTIFICATION**

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the hard copy has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

 9/7/05  
\_\_\_\_\_  
Leonard Fong, Ph.D., Laboratory Director / Date

# CLP Volatiles Water

Tetra Tech EC, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: LYNN JEFFERSON

Project: 1990.086B WATS Bldg 88 Moffett Airfield

ARF: 48287

Sample ID: 86-WOPT-145

APPL ID: AX24863

Sample Collection Date: 8/22/05

QCG: \$C42VT-050824BC-90057

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	8/25/05	8/25/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	8/25/05	8/25/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	0.5	0.21	ug/L	8/25/05	8/25/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	8/25/05	8/25/05
CLP VOL	1,1-Dichloroethane	Not detected	0.5	0.19	ug/L	8/25/05	8/25/05
CLP VOL	1,1-Dichloroethane	Not detected	0.5	0.30	ug/L	8/25/05	8/25/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	8/25/05	8/25/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	8/25/05	8/25/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	8/25/05	8/25/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	8/25/05	8/25/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	8/25/05	8/25/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	8/25/05	8/25/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	8/25/05	8/25/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	8/25/05	8/25/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	8/25/05	8/25/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	8/25/05	8/25/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	8/25/05	8/25/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	8/25/05	8/25/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	8/25/05	8/25/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	8/25/05	8/25/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	8/25/05	8/25/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	8/25/05	8/25/05
CLP VOL	cis-1,2-Dichloroethene	Not detected	0.5	0.16	ug/L	8/25/05	8/25/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	8/25/05	8/25/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	8/25/05	8/25/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	8/25/05	8/25/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	8/25/05	8/25/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	8/25/05	8/25/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	8/25/05	8/25/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	8/25/05	8/25/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	8/25/05	8/25/05
CLP VOL	Tetrachloroethane	Not detected	0.5	0.15	ug/L	8/25/05	8/25/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	8/25/05	8/25/05
CLP VOL	trans-1,2-Dichloroethene	Not detected	0.5	0.19	ug/L	8/25/05	8/25/05
CLP VOL	trans-1,3-Dichloropropane	Not detected	0.5	0.18	ug/L	8/25/05	8/25/05
CLP VOL	Trichloroethane	Not detected	0.5	0.16	ug/L	8/25/05	8/25/05

Run #: 0824C14  
Instrument: Chico  
Sequence: C050824  
Dilution Factor: 1  
Initials: SM

Printed: 8/25/05 5:10:21 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech EC, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: LYNN JEFFERSON

Project: 1990.086B WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-145

Sample Collection Date: 8/22/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 48287

APPL ID: AX24863

QCG: \$C42VT-050824BC-90057

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Vinyl Chloride	Not detected	0.5	0.23	ug/L	8/25/05	8/25/05
CLP VOL	Surrogate Recovery (BFB)	95.5	75-125		%	8/25/05	8/25/05
CLP VOL	Surrogate Recovery (DCA)	111	62-139		%	8/25/05	8/25/05
CLP VOL	Surrogate Recovery (TOL)	120	75-125		%	8/25/05	8/25/05

Run #: 0824C14  
Instrument: Chico  
Sequence: C050824  
Dilution Factor: 1  
Initials: SM

Printed: 8/25/05 5:10:21 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech EC, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: LYNN JEFFERSON

Project: 1990.086B WATS Bldg 88 Moffett Airfield

ARF: 48287

Sample ID: 86-WOPT-141

APPL ID: AX24864

Sample Collection Date: 8/22/05

QCG: \$C42VT-050824BC-90057

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	8/25/05	8/25/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	8/25/05	8/25/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	4.2	0.5	0.21	ug/L	8/25/05	8/25/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	8/25/05	8/25/05
CLP VOL	1,1-Dichloroethane	Not detected	0.5	0.19	ug/L	8/25/05	8/25/05
CLP VOL	1,1-Dichloroethane	Not detected	0.5	0.30	ug/L	8/25/05	8/25/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	8/25/05	8/25/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	8/25/05	8/25/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	8/25/05	8/25/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	8/25/05	8/25/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	8/25/05	8/25/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	8/25/05	8/25/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	8/25/05	8/25/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	8/25/05	8/25/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	8/25/05	8/25/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	8/25/05	8/25/05
CLP VOL	Carbon Disulfide	0.35 J	0.5	0.2	ug/L	8/25/05	8/25/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	8/25/05	8/25/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	8/25/05	8/25/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	8/25/05	8/25/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	8/25/05	8/25/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	8/25/05	8/25/05
CLP VOL	cis-1,2-Dichloroethene	0.28 J	0.5	0.16	ug/L	8/25/05	8/25/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	8/25/05	8/25/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	8/25/05	8/25/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	8/25/05	8/25/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	8/25/05	8/25/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	8/25/05	8/25/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	8/25/05	8/25/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	8/25/05	8/25/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	8/25/05	8/25/05
CLP VOL	Tetrachloroethene	0.17 J	0.5	0.15	ug/L	8/25/05	8/25/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	8/25/05	8/25/05
CLP VOL	trans-1,2-Dichloroethene	Not detected	0.5	0.19	ug/L	8/25/05	8/25/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	8/25/05	8/25/05
CLP VOL	Trichloroethene	7.2	0.5	0.16	ug/L	8/25/05	8/25/05

J = Estimated value, below quantitation limit.

Run #: 0824C15  
Instrument: Chico  
Sequence: C050824  
Dilution Factor: 1  
Initials: SM

Printed: 8/25/05 5:10:21 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech EC, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: LYNN JEFFERSON

Project: 1990.086B WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-141

Sample Collection Date: 8/22/05

ARF: 48287

APPL ID: AX24864

QCG: \$C42VT-050824BC-90057

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Vinyl Chloride	Not detected	0.5	0.23	ug/L	8/25/05	8/25/05
CLP VOL	Surrogate Recovery (BFB)	100	75-125		%	8/25/05	8/25/05
CLP VOL	Surrogate Recovery (DCA)	115	62-139		%	8/25/05	8/25/05
CLP VOL	Surrogate Recovery (TOL)	113	75-125		%	8/25/05	8/25/05

J = Estimated value, below quantitation limit.

*Handwritten:* 8/12/05

Run #: 0824C15  
Instrument: Chico  
Sequence: C050824  
Dilution Factor: 1  
Initials: SM

Printed: 8/25/05 5:10:21 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech EC, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: LYNN JEFFERSON

Project: 1990.086B WATS Bldg 88 Moffett Airfield

ARF: 48287

Sample ID: 86-WOPT-142

APPL ID: AX24865

Sample Collection Date: 8/22/05

QCG: \$C42VT-050824BC-90057

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	0.5	0.14	ug/L	8/25/05	8/25/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	0.5	0.27	ug/L	8/25/05	8/25/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	0.35 J	0.5	0.21	ug/L	8/25/05	8/25/05
CLP VOL	1,1,2-Trichloroethane	Not detected	0.5	0.2	ug/L	8/25/05	8/25/05
CLP VOL	1,1-Dichloroethane	0.21 J	0.5	0.19	ug/L	8/25/05	8/25/05
CLP VOL	1,1-Dichloroethene	0.45 J	0.5	0.30	ug/L	8/25/05	8/25/05
CLP VOL	1,2-Dichloroethane	Not detected	0.5	0.14	ug/L	8/25/05	8/25/05
CLP VOL	1,2-Dichloropropane	Not detected	0.5	0.17	ug/L	8/25/05	8/25/05
CLP VOL	2-Butanone	Not detected	5	0.6	ug/L	8/25/05	8/25/05
CLP VOL	2-Hexanone	Not detected	5	0.92	ug/L	8/25/05	8/25/05
CLP VOL	4-Methyl-2-pentanone	Not detected	5	1.9	ug/L	8/25/05	8/25/05
CLP VOL	Acetone	Not detected	5	0.95	ug/L	8/25/05	8/25/05
CLP VOL	Benzene	Not detected	0.5	0.16	ug/L	8/25/05	8/25/05
CLP VOL	Bromodichloromethane	Not detected	0.5	0.14	ug/L	8/25/05	8/25/05
CLP VOL	Bromoform	Not detected	0.5	0.14	ug/L	8/25/05	8/25/05
CLP VOL	Bromomethane	Not detected	0.5	0.24	ug/L	8/25/05	8/25/05
CLP VOL	Carbon Disulfide	Not detected	0.5	0.2	ug/L	8/25/05	8/25/05
CLP VOL	Carbon Tetrachloride	Not detected	0.5	0.10	ug/L	8/25/05	8/25/05
CLP VOL	Chlorobenzene	Not detected	0.5	0.21	ug/L	8/25/05	8/25/05
CLP VOL	Chloroethane	Not detected	0.5	0.21	ug/L	8/25/05	8/25/05
CLP VOL	Chloroform	Not detected	0.5	0.16	ug/L	8/25/05	8/25/05
CLP VOL	Chloromethane	Not detected	0.5	0.31	ug/L	8/25/05	8/25/05
CLP VOL	cis-1,2-Dichloroethene	5.3	0.5	0.16	ug/L	8/25/05	8/25/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	0.5	0.15	ug/L	8/25/05	8/25/05
CLP VOL	Dibromochloromethane	Not detected	0.5	0.19	ug/L	8/25/05	8/25/05
CLP VOL	Ethylbenzene	Not detected	0.5	0.23	ug/L	8/25/05	8/25/05
CLP VOL	m,p-Xylenes	Not detected	0.5	0.19	ug/L	8/25/05	8/25/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	0.5	0.19	ug/L	8/25/05	8/25/05
CLP VOL	Methylene Chloride	Not detected	0.5	0.35	ug/L	8/25/05	8/25/05
CLP VOL	o-Xylene	Not detected	0.5	0.19	ug/L	8/25/05	8/25/05
CLP VOL	Styrene	Not detected	0.5	0.25	ug/L	8/25/05	8/25/05
CLP VOL	Tetrachloroethene	Not detected	0.5	0.15	ug/L	8/25/05	8/25/05
CLP VOL	Toluene	Not detected	0.5	0.17	ug/L	8/25/05	8/25/05
CLP VOL	trans-1,2-Dichloroethene	Not detected	0.5	0.19	ug/L	8/25/05	8/25/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	0.5	0.18	ug/L	8/25/05	8/25/05
CLP VOL	Trichloroethene	7.3	0.5	0.16	ug/L	8/25/05	8/25/05

J = Estimated value, below quantitation limit.

Run #: 0824C16  
Instrument: Chico  
Sequence: C050824  
Dilution Factor: 1  
Initials: SM

Printed: 8/25/05 5:10:21 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



## CLP Volatiles Water

Tetra Tech EC, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: LYNN JEFFERSON

Project: 1990.086B WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-142**

Sample Collection Date: 8/22/05

ARF: 48287

**APPL ID: AX24865**

QCG: \$C42VT-050824BC-90057

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Vinyl Chloride	Not detected	0.5	0.23	ug/L	8/25/05	8/25/05
CLP VOL	Surrogate Recovery (BFB)	91.1	75-125		%	8/25/05	8/25/05
CLP VOL	Surrogate Recovery (DCA)	125	62-139		%	8/25/05	8/25/05
CLP VOL	Surrogate Recovery (TOL)	108	75-125		%	8/25/05	8/25/05

J = Estimated value, below quantitation limit.

Run #: 0824C16  
Instrument: Chico  
Sequence: C050824  
Dilution Factor: 1  
Initials: SM

Printed: 8/25/05 5:10:21 PM  
APPL-F1-SC-MCRes MCPOL-REG MDLs

# CLP Volatiles Water

Tetra Tech EC, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: LYNN JEFFERSON

Project: 1990.086B WATS Bldg 88 Moffett Airfield

ARF: 48287

Sample ID: 86-WOPT-143

APPL ID: AX24866

Sample Collection Date: 8/22/05

QCG: SC42VD-050827AS-90157

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	25	7.00	ug/L	8/27/05	8/27/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	25	13.50	ug/L	8/27/05	8/27/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	25	10.50	ug/L	8/27/05	8/27/05
CLP VOL	1,1,2-Trichloroethane	Not detected	25	10.0	ug/L	8/27/05	8/27/05
CLP VOL	1,1-Dichloroethane	Not detected	25	9.50	ug/L	8/27/05	8/27/05
CLP VOL	1,1-Dichloroethene	45	25	15.00	ug/L	8/27/05	8/27/05
CLP VOL	1,2-Dichloroethane	Not detected	25	7.00	ug/L	8/27/05	8/27/05
CLP VOL	1,2-Dichloropropane	Not detected	25	8.50	ug/L	8/27/05	8/27/05
CLP VOL	2-Butanone	Not detected	250	30.0	ug/L	8/27/05	8/27/05
CLP VOL	2-Hexanone	Not detected	250	46.00	ug/L	8/27/05	8/27/05
CLP VOL	4-Methyl-2-pentanone	Not detected	250	95.0	ug/L	8/27/05	8/27/05
CLP VOL	Acetone	Not detected	250	47.50	ug/L	8/27/05	8/27/05
CLP VOL	Benzene	Not detected	25	8.00	ug/L	8/27/05	8/27/05
CLP VOL	Bromodichloromethane	Not detected	25	7.00	ug/L	8/27/05	8/27/05
CLP VOL	Bromoform	Not detected	25	7.00	ug/L	8/27/05	8/27/05
CLP VOL	Bromomethane	Not detected	25	12.00	ug/L	8/27/05	8/27/05
CLP VOL	Carbon Disulfide	Not detected	25	10.0	ug/L	8/27/05	8/27/05
CLP VOL	Carbon Tetrachloride	Not detected	25	5.00	ug/L	8/27/05	8/27/05
CLP VOL	Chlorobenzene	Not detected	25	10.50	ug/L	8/27/05	8/27/05
CLP VOL	Chloroethane	Not detected	25	10.50	ug/L	8/27/05	8/27/05
CLP VOL	Chloroform	Not detected	25	8.00	ug/L	8/27/05	8/27/05
CLP VOL	Chloromethane	Not detected	25	15.50	ug/L	8/27/05	8/27/05
CLP VOL	cis-1,2-Dichloroethene	10000 E	25	8.00	ug/L	8/27/05	8/27/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	25	7.50	ug/L	8/27/05	8/27/05
CLP VOL	Dibromochloromethane	Not detected	25	9.50	ug/L	8/27/05	8/27/05
CLP VOL	Ethylbenzene	Not detected	25	11.50	ug/L	8/27/05	8/27/05
CLP VOL	m,p-Xylenes	Not detected	25	9.50	ug/L	8/27/05	8/27/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	25	9.50	ug/L	8/27/05	8/27/05
CLP VOL	Methylene Chloride	Not detected	25	17.50	ug/L	8/27/05	8/27/05
CLP VOL	o-Xylene	Not detected	25	9.50	ug/L	8/27/05	8/27/05
CLP VOL	Styrene	Not detected	25	12.50	ug/L	8/27/05	8/27/05
CLP VOL	Tetrachloroethene	69	25	7.50	ug/L	8/27/05	8/27/05
CLP VOL	Toluene	Not detected	25	8.50	ug/L	8/27/05	8/27/05
CLP VOL	trans-1,2-Dichloroethene	110	25	9.50	ug/L	8/27/05	8/27/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	25	9.00	ug/L	8/27/05	8/27/05
CLP VOL	Trichloroethene	31	25	8.00	ug/L	8/27/05	8/27/05

E = The reported value exceeds linear range.

Run #: 0827S06  
Instrument: Sweetpea  
Sequence: S050825  
Dilution Factor: 50  
Initials: LF

Printed 9/7/05 9:53:51 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech EC, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: LYNN JEFFERSON

Project: 1990.086B WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-143

Sample Collection Date: 8/22/05

ARF: 48287

APPL ID: AX24866

QCG: SC42VD-050827AS-90157

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Vinyl Chloride	Not detected	25	11.50	ug/L	8/27/05	8/27/05
CLP VOL	Surrogate Recovery (BFB)	101	75-125		%	8/27/05	8/27/05
CLP VOL	Surrogate Recovery (DCA)	90.2	62-139		%	8/27/05	8/27/05
CLP VOL	Surrogate Recovery (TOL)	108	75-125		%	8/27/05	8/27/05

E = The reported value exceeds linear range.

Run #: 0827S06  
Instrument: Sweetpea  
Sequence: S050825  
Dilution Factor: 50  
Initials: LF

Printed: 9/7/05 9:53:52 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech EC, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: LYNN JEFFERSON

Project: 1990.086B WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-143

Sample Collection Date: 8/22/05

ARF: 48287

APPL ID: AX24866

QCG: SC42VT-050825AC-90085

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	9700	100	32.00	ug/L	8/25/05	8/25/05
CLP VOL	Surrogate Recovery (BFB)	109	75-125		%	8/25/05	8/25/05
CLP VOL	Surrogate Recovery (DCA)	116	62-139		%	8/25/05	8/25/05
CLP VOL	Surrogate Recovery (TOL)	102	75-125		%	8/25/05	8/25/05

Run #: 0825C07  
Instrument: Chico  
Sequence: C050824  
Dilution Factor: 200  
Initials: SM

Printed: 9/7/05 9:56:26 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# CLP Volatiles Water

Tetra Tech EC, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: LYNN JEFFERSON

Project: 1990.086B WATS Bldg 88 Moffett Airfield

ARF: 48287

Sample ID: 86-WOPT-144

APPL ID: AX24867

Sample Collection Date: 8/22/05

QC: C42VD-050827AS-90157

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	1,1,1-Trichloroethane	Not detected	25	7.00	ug/L	8/27/05	8/27/05
CLP VOL	1,1,2,2-Tetrachloroethane	Not detected	25	13.50	ug/L	8/27/05	8/27/05
CLP VOL	1,1,2-Trichloro-1,2,2-trifluoroethane	Not detected	25	10.50	ug/L	8/27/05	8/27/05
CLP VOL	1,1,2-Trichloroethane	Not detected	25	10.0	ug/L	8/27/05	8/27/05
CLP VOL	1,1-Dichloroethane	Not detected	25	9.50	ug/L	8/27/05	8/27/05
CLP VOL	1,1-Dichloroethene	47	25	15.00	ug/L	8/27/05	8/27/05
CLP VOL	1,2-Dichloroethane	Not detected	25	7.00	ug/L	8/27/05	8/27/05
CLP VOL	1,2-Dichloropropane	Not detected	25	8.50	ug/L	8/27/05	8/27/05
CLP VOL	2-Butanone	Not detected	250	30.0	ug/L	8/27/05	8/27/05
CLP VOL	2-Hexanone	Not detected	250	46.00	ug/L	8/27/05	8/27/05
CLP VOL	4-Methyl-2-pentanone	Not detected	250	95.0	ug/L	8/27/05	8/27/05
CLP VOL	Acetone	Not detected	250	47.50	ug/L	8/27/05	8/27/05
CLP VOL	Benzene	Not detected	25	8.00	ug/L	8/27/05	8/27/05
CLP VOL	Bromodichloromethane	Not detected	25	7.00	ug/L	8/27/05	8/27/05
CLP VOL	Bromoform	Not detected	25	7.00	ug/L	8/27/05	8/27/05
CLP VOL	Bromomethane	Not detected	25	12.00	ug/L	8/27/05	8/27/05
CLP VOL	Carbon Disulfide	Not detected	25	10.0	ug/L	8/27/05	8/27/05
CLP VOL	Carbon Tetrachloride	Not detected	25	5.00	ug/L	8/27/05	8/27/05
CLP VOL	Chlorobenzene	Not detected	25	10.50	ug/L	8/27/05	8/27/05
CLP VOL	Chloroethane	Not detected	25	10.50	ug/L	8/27/05	8/27/05
CLP VOL	Chloroform	Not detected	25	8.00	ug/L	8/27/05	8/27/05
CLP VOL	Chloromethane	Not detected	25	15.50	ug/L	8/27/05	8/27/05
CLP VOL	cis-1,2-Dichloroethene	10000 E	25	8.00	ug/L	8/27/05	8/27/05
CLP VOL	cis-1,3-Dichloropropene	Not detected	25	7.50	ug/L	8/27/05	8/27/05
CLP VOL	Dibromochloromethane	Not detected	25	9.50	ug/L	8/27/05	8/27/05
CLP VOL	Ethylbenzene	Not detected	25	11.50	ug/L	8/27/05	8/27/05
CLP VOL	m,p-Xylenes	Not detected	25	9.50	ug/L	8/27/05	8/27/05
CLP VOL	Methyl tert-Butyl Ether	Not detected	25	9.50	ug/L	8/27/05	8/27/05
CLP VOL	Methylene Chloride	Not detected	25	17.50	ug/L	8/27/05	8/27/05
CLP VOL	o-Xylene	Not detected	25	9.50	ug/L	8/27/05	8/27/05
CLP VOL	Styrene	Not detected	25	12.50	ug/L	8/27/05	8/27/05
CLP VOL	Tetrachloroethene	47	25	7.50	ug/L	8/27/05	8/27/05
CLP VOL	Toluene	Not detected	25	8.50	ug/L	8/27/05	8/27/05
CLP VOL	trans-1,2-Dichloroethene	120	25	9.50	ug/L	8/27/05	8/27/05
CLP VOL	trans-1,3-Dichloropropene	Not detected	25	9.00	ug/L	8/27/05	8/27/05
CLP VOL	Trichloroethene	20 J	25	8.00	ug/L	8/27/05	8/27/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

Run #: 0827S07  
Instrument: Sweetpea  
Sequence: S050825  
Dilution Factor: 50  
Initials: LF

Printed: 9/7/05 9:53:52 AM  
APPL-F1-SC-MCRes\MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech EC, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: LYNN JEFFERSON

Project: 1990.086B WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-144**

Sample Collection Date: 8/22/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 48287

**APPL ID: AX24867**

QCG: SC42VD-050827AS-90157

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	Vinyl Chloride	Not detected	25	11.50	ug/L	8/27/05	8/27/05
CLP VOL	Surrogate Recovery (BFB)	94.3	75-125		%	8/27/05	8/27/05
CLP VOL	Surrogate Recovery (DCA)	96.8	62-139		%	8/27/05	8/27/05
CLP VOL	Surrogate Recovery (TOL)	97.1	75-125		%	8/27/05	8/27/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.

Run #: 0827S07  
Instrument: Sweetpea  
Sequence: S050825  
Dilution Factor: 50  
Initials: LF

Printed: 9/7/05 9:53:52 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## CLP Volatiles Water

Tetra Tech EC, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: LYNN JEFFERSON

Project: 1990.086B WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-144

Sample Collection Date: 8/22/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 48287

APPL ID: AX24867

QCG: SC42VT-050825AC-90085

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
CLP VOL	cis-1,2-Dichloroethene	10000	100	32.00	ug/L	8/25/05	8/25/05
CLP VOL	Surrogate Recovery (BFB)	108	75-125		%	8/25/05	8/25/05
CLP VOL	Surrogate Recovery (DCA)	121	62-139		%	8/25/05	8/25/05
CLP VOL	Surrogate Recovery (TOL)	101	75-125		%	8/25/05	8/25/05

Run #: 0825C08  
Instrument: Chico  
Sequence: C050824  
Dilution Factor: 200  
Initials: SM

Printed: 9/7/05 9:56:26 AM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**Laboratory Data Consultants, Inc.**  
**Data Validation Report**

**Project/Site Name:** Moffett Airfield, Building 88. CTO 86

**Collection Date:** August 22. 2005

**LDC Report Date:** September 12, 2005

**Matrix:** Water

**Parameters:** Volatiles

**Validation Level:** EPA Level III & IV

**Laboratory:** APPL, Inc.

**Sample Delivery Group (SDG):** 48287

**Sample Identification**

86-WOPT-145  
86-WOPT-141\*\*  
86-WOPT-142  
86-WOPT-143  
86-WOPT-143DL  
86-WOPT-144\*\*  
86-WOPT-144DL\*\*

\*\*Indicates sample underwent EPA Level IV review



## Introduction

This data review covers 7 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Contract Laboratory Program Statement of Work (SOW) OLM04.2 for Volatiles.

This review follows USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999); the following subsections correlate to the above guidelines.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 30.0% for selected compounds.

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination ( $r^2$ ) was greater than or equal to 0.990.

Average relative response factors (RRF) for all volatile target compounds and system monitoring compounds were within validation criteria.

## IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 25.0% with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
8/27/05	2-Hexanone	29	86-WOPT-143 86-WOPT-144** 050827A-1WA	J (all detects) UJ (all non-detects)	A

All of the continuing calibration RRF values were within validation criteria.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Analysis Date	Compound TIC (RT in minutes)	Concentration	Associated Samples
0508248-1WC	8/25/05	Methylene chloride	0.69 ug/L	86-WOPT-145 86-WCPT-141** 86-WOPT-142

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated method blanks.

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## VIII. Laboratory Control Samples (LCS)

Although laboratory control samples were not required by the method, laboratory control samples were reported by the laboratory. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## IX. Regional Quality Assurance and Quality Control

Not applicable.

## X. Internal Standards

All internal standard areas and retention times were within QC limits.

## XI. Target Compound Identifications

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

## XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
86-WOPT-143 86-WOPT-144**	cis-1,2-Dichloroethene	Sample result exceeded calibration range	Reported result should be within calibration range.	J (all detects)	A

Raw data were not evaluated for the samples reviewed by Level III criteria.

### XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

### XIV. System Performance

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

### XV. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### XVI. Field Duplicates

Samples 86-WOPT-143 and 86-WOPT-144\*\* and samples 86-WOPT-143DL and 86-WOPT-144DL\*\* were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	86-WOPT-143	86-WOPT-144**	
1,1-Dichloroethene	45	47	4
cis-1,2-Dichloroethene	10000	10000	0
Tetrachloroethene	69	47	38
trans-1,2-Dichloroethene	110	120	9
Trichloroethene	51	29	43

Compound	Concentration (ug/L)		RPD
	86-WOPT-143DL	86-WOPT-144DL**	
cis-1,2-Dichloroethene	9700	10000	3

## XVII. Field Blanks

Sample 86-WOPT-145 was identified as a trip blank. No volatile contaminants were found in this blank.

**Moffett Airfield, Building 88, CTO 86**

**Volatiles - Data Qualification Summary - SDG 48287**

SDG	Sample	Compound	Flag	A or P	Reason
48287	86-WOPT-143 86-WOPT-144**	2-Hexanone	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
48287	86-WOPT-143 86-WOPT-144**	cis-1,2-Dichloroethene	J (all detects)	A	Compound quantitation and CRQLs

**Moffett Airfield, Building 88, CTO 86**

**Volatiles - Laboratory Blank Data Qualification Summary - SDG 48287**

No Sample Data Qualified in this SDG



## NUMBER 70812

NUMBER 10812

White - Laboratory, Pink - Laboratory, Copy - Project File, Memo - Data Management

004XC14-12 / 054409-12



## Case Narrative

ARF: 48095

Project: 1990.086B WATS Bldg 88 Moffett Airfield

State Certification Number: CA1312

Results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

### Sample Receipt Information:

The sample group was received July 28, 2005, at 4.0°C. The samples were assigned Analytical Request Form (ARF) number 48095. The sample numbers and requested analysis were compared to the chains of custody. No exception was noted.

Sample Table

CLIENT ID	APPL ID	Matrix	Date Sampled	Date Received
86-WOPT-128	AX23948	WATER	7/27/2005	7/28/2005
86-WOPT-124	AX23949	SOIL	7/27/2005	7/28/2005
86-WOPT-125	AX23950	SOIL	7/27/2005	7/28/2005
86-WOPT-127	AX23952	WATER	7/27/2005	7/28/2005



# **EPA Method 8260B and CLP Volatiles Volatile Organic Analysis**

## **Sample Preparation:**

The samples were purged according to EPA method 5030B, 5035, and CLP. All other holding times were met.

## **Sample Analysis Information:**

The samples were analyzed according to the method using a Hewlett Packard Gas Chromatograph with a mass spectrometer detector. The sample pH were taken after analysis. Sample 86-WOPT-127 had a pH of 7. All other samples had a pH of 2.

## **Quality Control/Assurance**

### **Calibrations:**

Initial and continuing calibrations were performed according to the method. For the continuing calibration verification performed on Neo file ID: 0506N23W.D, Chloroethane had a 29%D. All other calibration criteria were met.

### **Blanks:**

For the 050731AC method blank, Acetone was detected above the Method Detection Limit at 4.6µg/L. All associated samples containing Acetone were "B" flagged. No target analyte was detected above the reporting limits in the method blanks.

### **Spikes:**

Laboratory Control Spikes (LCS) were used for quality assurance. A second-source standard was used for the LCS. All spike and second-source criteria were met. All recoveries were within acceptable limits.

No sample was designated by the client for MS/MSD analysis.

### **Surrogates**

All surrogate recoveries were within control limits.

### **Tuning:**

The instrument was tuned using BFB. All method criteria were met.

### **Internal Standards**

The internal standard area counts were compared to the mid-point of the initial calibration according to method 8260. All method criteria were met.

The internal standard area counts were compared to the continuing calibration according to CLP. All method criteria were met.

## **Summary:**

No additional problem was encountered.

## CERTIFICATION

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the hard copy has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Leonard Fong <sup>by DA</sup> 8/16/05  
Leonard Fong, Ph.D., Laboratory Director / Date

# EPA 8260B

Tetra Tech EC, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: LYNN JEFFERSON

Project: 1990.086B WATS Bldg 88 Moffett Airfield

ARF: 48095

Sample ID: 86-WOPT-124

APPL ID: AX23949

Sample Collection Date: 7/27/05

QCG: \$86TTS-050731AC-89439

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Moisture testing was not done on this sample.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	5	0.81	ug/Kg	7/31/05	7/31/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	5	1.24	ug/Kg	7/31/05	7/31/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	5	0.48	ug/Kg	7/31/05	7/31/05
EPA 8260B	1,1-Dichloroethane	Not detected	5	1.13	ug/Kg	7/31/05	7/31/05
EPA 8260B	1,1-Dichloroethene	8.7	5	0.79	ug/Kg	7/31/05	7/31/05
EPA 8260B	1,2-Dichloroethane	Not detected	5	0.72	ug/Kg	7/31/05	7/31/05
EPA 8260B	1,2-Dichloropropane	Not detected	5	0.62	ug/Kg	7/31/05	7/31/05
EPA 8260B	2-Butanone	Not detected	50	0.71	ug/Kg	7/31/05	7/31/05
EPA 8260B	2-Hexanone	Not detected	50	0.16	ug/Kg	7/31/05	7/31/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	50	0.93	ug/Kg	7/31/05	7/31/05
EPA 8260B	Acetone	24 B J	100	2.8	ug/Kg	7/31/05	7/31/05
EPA 8260B	Benzene	Not detected	5	0.63	ug/Kg	7/31/05	7/31/05
EPA 8260B	Bromodichloromethane	Not detected	5	0.69	ug/Kg	7/31/05	7/31/05
EPA 8260B	Bromoform	Not detected	5	0.80	ug/Kg	7/31/05	7/31/05
EPA 8260B	Bromomethane	Not detected	10	1.60	ug/Kg	7/31/05	7/31/05
EPA 8260B	Carbon disulfide	Not detected	5	1.08	ug/Kg	7/31/05	7/31/05
EPA 8260B	Carbon tetrachloride	Not detected	5	0.80	ug/Kg	7/31/05	7/31/05
EPA 8260B	Chlorobenzene	Not detected	5	0.49	ug/Kg	7/31/05	7/31/05
EPA 8260B	Chloroethane	Not detected	5	1.55	ug/Kg	7/31/05	7/31/05
EPA 8260B	Chloroform	Not detected	5	1.43	ug/Kg	7/31/05	7/31/05
EPA 8260B	Chloromethane	Not detected	5	1.82	ug/Kg	7/31/05	7/31/05
EPA 8260B	cis-1,2-Dichloroethene	18	5	1.07	ug/Kg	7/31/05	7/31/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	5	0.47	ug/Kg	7/31/05	7/31/05
EPA 8260B	Dibromochloromethane	Not detected	5	0.85	ug/Kg	7/31/05	7/31/05
EPA 8260B	Ethylbenzene	Not detected	5	0.64	ug/Kg	7/31/05	7/31/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	5	0.89	ug/Kg	7/31/05	7/31/05
EPA 8260B	Methylene chloride	Not detected	50	4.58	ug/Kg	7/31/05	7/31/05
EPA 8260B	Styrene	Not detected	5	0.69	ug/Kg	7/31/05	7/31/05
EPA 8260B	Tetrachloroethene	1800 E	5	0.54	ug/Kg	7/31/05	7/31/05
EPA 8260B	Toluene	Not detected	5	0.65	ug/Kg	7/31/05	7/31/05
EPA 8260B	trans-1,2-Dichloroethene	6.8	5	1.35	ug/Kg	7/31/05	7/31/05
EPA 8260B	trans-1,3-Dichloropropene	Not detected	5	0.43	ug/Kg	7/31/05	7/31/05
EPA 8260B	Trichloroethene	950 E	5	0.71	ug/Kg	7/31/05	7/31/05
EPA 8260B	Vinyl Acetate	Not detected	50	1.0	ug/Kg	7/31/05	7/31/05
EPA 8260B	Vinyl chloride	Not detected	5	1.68	ug/Kg	7/31/05	7/31/05
EPA 8260B	Xylenes	Not detected	15	0.68	ug/Kg	7/31/05	7/31/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0731C07  
Instrument: Chico  
Sequence: C050730  
Dilution Factor: 1  
Initials: LF

Printed: 8/15/05 1:49:58 PM  
APPL-F1-SC-MCRes/MCPOL-REG MDLs

## EPA 8260B

Tetra Tech EC, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: LYNN JEFFERSON

Project: 1990.086B WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-124**

Sample Collection Date: 7/27/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 48095

**APPL ID: AX23949**

QCG: \$86TTS-050731AC-89439

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	123	52-149		%	7/31/05	7/31/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	97.8	65-135		%	7/31/05	7/31/05
EPA 8260B	Surrogate recovery: Toluene-d8	97.0	65-135		%	7/31/05	7/31/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0731C07  
Instrument: Chico  
Sequence: C050730  
Dilution Factor: 1  
Initials: LF

Printed: 8/15/05 1:49:58 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech EC, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: LYNN JEFFERSON

Project: 1990.086B WATS Bldg 88 Moffett Airfield

**Sample ID: 86-WOPT-124**

Sample Collection Date: 7/27/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 48095

**APPL ID: AX23949**

QCG: \$86TTD-050811AH-89642

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Moisture testing was not done on this sample.)							
EPA 8260B-	Tetrachloroethene	10000	130	37.50	ug/Kg	8/11/05	8/11/05
EPA 8260B-	Trichloroethene	1900	130	40.00	ug/Kg	8/11/05	8/11/05
EPA 8260B-	Surrogate recovery: 1,2-Dichloroethene	95.0	52-149		%	8/11/05	8/11/05
EPA 8260B-	Surrogate recovery: 4-Bromofluorobenz	105	65-135		%	8/11/05	8/11/05
EPA 8260B-	Surrogate recovery: Toluene-d8	98.3	65-135		%	8/11/05	8/11/05

Run #: 0811H07  
Instrument: HEWEY  
Sequence: H050809  
Dilution Factor: 250  
Initials: SM

Printed: 8/15/05 2:46:50 PM  
APPL-F1-SC-MCResMCPQL-REG MDLs

# EPA 8260B

Tetra Tech EC, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: LYNN JEFFERSON

Project: 1990.086B WATS Bldg 88 Moffett Airfield

ARF: 48095

Sample ID: 86-WOPT-125

APPL ID: AX23950

Sample Collection Date: 7/27/05

QCQ: S86TTS-050731AC-89439

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Moisture testing was not done on this sample.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	5	0.81	ug/Kg	7/31/05	7/31/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	5	1.24	ug/Kg	7/31/05	7/31/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	5	0.48	ug/Kg	7/31/05	7/31/05
EPA 8260B	1,1-Dichloroethane	Not detected	5	1.13	ug/Kg	7/31/05	7/31/05
EPA 8260B	1,1-Dichloroethene	2.3 J	5	0.79	ug/Kg	7/31/05	7/31/05
EPA 8260B	1,2-Dichloroethane	Not detected	5	0.72	ug/Kg	7/31/05	7/31/05
EPA 8260B	1,2-Dichloropropane	Not detected	5	0.62	ug/Kg	7/31/05	7/31/05
EPA 8260B	2-Butanone	Not detected	50	0.71	ug/Kg	7/31/05	7/31/05
EPA 8260B	2-Hexanone	Not detected	50	0.16	ug/Kg	7/31/05	7/31/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	50	0.93	ug/Kg	7/31/05	7/31/05
EPA 8260B	Acetone	6.1 B J	100	2.8	ug/Kg	7/31/05	7/31/05
EPA 8260B	Benzene	Not detected	5	0.63	ug/Kg	7/31/05	7/31/05
EPA 8260B	Bromodichloromethane	Not detected	5	0.69	ug/Kg	7/31/05	7/31/05
EPA 8260B	Bromoform	Not detected	5	0.80	ug/Kg	7/31/05	7/31/05
EPA 8260B	Bromomethane	Not detected	10	1.60	ug/Kg	7/31/05	7/31/05
EPA 8260B	Carbon disulfide	Not detected	5	1.08	ug/Kg	7/31/05	7/31/05
EPA 8260B	Carbon tetrachloride	Not detected	5	0.80	ug/Kg	7/31/05	7/31/05
EPA 8260B	Chlorobenzene	Not detected	5	0.49	ug/Kg	7/31/05	7/31/05
EPA 8260B	Chloroethane	Not detected	5	1.55	ug/Kg	7/31/05	7/31/05
EPA 8260B	Chloroform	Not detected	5	1.43	ug/Kg	7/31/05	7/31/05
EPA 8260B	Chloromethane	Not detected	5	1.82	ug/Kg	7/31/05	7/31/05
EPA 8260B	cis-1,2-Dichloroethene	6.0	5	1.07	ug/Kg	7/31/05	7/31/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	5	0.47	ug/Kg	7/31/05	7/31/05
EPA 8260B	Dibromochloromethane	Not detected	5	0.85	ug/Kg	7/31/05	7/31/05
EPA 8260B	Ethylbenzene	Not detected	5	0.64	ug/Kg	7/31/05	7/31/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	5	0.89	ug/Kg	7/31/05	7/31/05
EPA 8260B	Methylene chloride	Not detected	50	4.58	ug/Kg	7/31/05	7/31/05
EPA 8260B	Styrene	Not detected	5	0.69	ug/Kg	7/31/05	7/31/05
EPA 8260B	Tetrachloroethene	830 E	5	0.54	ug/Kg	7/31/05	7/31/05
EPA 8260B	Toluene	Not detected	5	0.65	ug/Kg	7/31/05	7/31/05
EPA 8260B	trans-1,2-Dichloroethene	1.8 J	5	1.35	ug/Kg	7/31/05	7/31/05
EPA 8260B	trans-1,3-Dichloropropene	Not detected	5	0.43	ug/Kg	7/31/05	7/31/05
EPA 8260B	Trichloroethene	240 E	5	0.71	ug/Kg	7/31/05	7/31/05
EPA 8260B	Vinyl Acetate	Not detected	50	1.0	ug/Kg	7/31/05	7/31/05
EPA 8260B	Vinyl chloride	Not detected	5	1.68	ug/Kg	7/31/05	7/31/05
EPA 8260B	Xylenes	Not detected	15	0.68	ug/Kg	7/31/05	7/31/05

J = Estimated value, below quantitation limit.

E = The reported value exceeds linear range.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0731C08  
Instrument: Chico  
Sequence: C050730  
Dilution Factor: 1  
Initials: LF

Printed: 8/15/05 1:51:36 PM

APPL-F1-SC-MCRes/MCPOL-REG MDLs

## EPA 8260B

Tetra Tech EC, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: LYNN JEFFERSON

Project: 1990.086B WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-125

Sample Collection Date: 7/27/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 48095

APPL ID: AX23950

QCG: \$86TTS-050731AC-89439

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	113	52-149		%	7/31/05	7/31/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	96.6	65-135		%	7/31/05	7/31/05
EPA 8260B	Surrogate recovery: Toluene-d8	94.4	65-135		%	7/31/05	7/31/05

J = Estimated value, below quantitation limit.  
E = The reported value exceeds linear range.  
B = The analyte was found in a method blank, as well as in the sample.

Run #: 0731C08  
Instrument: Chico  
Sequence: C050730  
Dilution Factor: 1  
Initials: LF

Printed: 8/15/05 1:51:36 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

# EPA 8260B

Tetra Tech EC, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: LYNN JEFFERSON

Project: 1990.086B WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-125

Sample Collection Date: 7/27/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 48095

APPL ID: AX23950

QCG: \$86TTD-050811AH-89642

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Moisture testing was not done on this sample.)							
EPA 8260B-	Tetrachloroethene	8700	130	37.50	ug/Kg	8/11/05	8/11/05
EPA 8260B-	Trichloroethene	1300	130	40.00	ug/Kg	8/11/05	8/11/05
EPA 8260B-	Surrogate recovery: 1,2-Dichloroethane	95.0	52-149		%	8/11/05	8/11/05
EPA 8260B-	Surrogate recovery: 4-Bromofluorobenz	106	65-135		%	8/11/05	8/11/05
EPA 8260B-	Surrogate recovery: Toluene-d8	98.8	65-135		%	8/11/05	8/11/05

Run #: 0811H08  
Instrument: HEWEY  
Sequence: H050809  
Dilution Factor: 250  
Initials: TK

Printed: 8/15/05 2:46:50 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs





1240 Columbia Street, Suite 510  
San Diego, CA 92101 (619) 234-8696

## NUMBER 10813

Building 88  
Box 49, for Sampling

White - Laboratory; Pink - Laboratory; Canary - Project File; Modular - Data Management

0048132-12/004813-12



## Case Narrative

ARF: 48133

Project: 1990.086B WATS Bldg 88 Moffett Airfield

State Certification Number: CA1312

Results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

### Sample Receipt Information:

The sample group was received July 30, 2005, at 4.0°C. The samples were assigned Analytical Request Form (ARF) number 48133. The sample numbers and requested analysis were compared to the chains of custody. No exception was noted.

Sample Table

CLIENT ID	APPL ID	Matrix	Date Sampled	Date Received
86-WOPT-129	AX24112	WATER	7/29/2005	7/30/2005
86-WOPT-133	AX24113	SOIL	7/29/2005	7/30/2005

# **EPA Method 8260B and CLP Volatiles Volatile Organic Analysis**

## **Sample Preparation:**

The samples were purged according to EPA method 5030B, 5035, and CLP. All other holding times were met.

## **Sample Analysis Information:**

The samples were analyzed according to the method using a Hewlett Packard Gas Chromatograph with a mass spectrometer detector. The sample pH were taken after analysis. All samples had a pH of 2.

## **Quality Control/Assurance**

### **Calibrations:**

Initial and continuing calibrations were performed according to the method. For the continuing calibration verification performed on Neo file ID: 0506N23W.D, Chloroethane had a 29%D. All other calibration criteria were met.

### **Blanks:**

For the 050731AC method blank, Acetone was detected above the Method Detection Limit at 4.6µg/L. All associated samples containing Acetone were "B" flagged. No target analyte was detected above the reporting limits in the method blanks.

### **Spikes:**

Laboratory Control Spikes (LCS) were used for quality assurance. A second-source standard was used for the LCS. All spike and second-source criteria were met. All recoveries were within acceptable limits.

No sample was designated by the client for MS/MSD analysis.

### **Surrogates**

All surrogate recoveries were within control limits.

### **Tuning:**

The instrument was tuned using BFB. All method criteria were met.

### **Internal Standards**

The internal standard area counts were compared to the mid-point of the initial calibration according to method 8260. All method criteria were met.

The internal standard area counts were compared to the continuing calibration according to CLP. All method criteria were met.

## **Summary:**

No additional problem was encountered.

## CERTIFICATION

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the hard copy has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Leonard Fong <sup>by DT</sup> 8/16/05  
Leonard Fong, Ph.D, Laboratory Director / Date

# EPA 8260B

Tetra Tech EC, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: LYNN JEFFERSON

Project: 1990.086B WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-133

Sample Collection Date: 7/29/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 48133

APPL ID: AX24113

QCG: \$86TTS-050731AC-89439

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 18.7 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	6	1.0	ug/Kg	7/31/05	7/31/05
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	6	1.5	ug/Kg	7/31/05	7/31/05
EPA 8260B	1,1,2-Trichloroethane	Not detected	6	0.59	ug/Kg	7/31/05	7/31/05
EPA 8260B	1,1-Dichloroethane	Not detected	6	1.4	ug/Kg	7/31/05	7/31/05
EPA 8260B	1,1-Dichloroethane	Not detected	6	0.97	ug/Kg	7/31/05	7/31/05
EPA 8260B	1,2-Dichloroethane	Not detected	6	0.89	ug/Kg	7/31/05	7/31/05
EPA 8260B	1,2-Dichloropropane	Not detected	6	0.76	ug/Kg	7/31/05	7/31/05
EPA 8260B	2-Butanone	Not detected	62	0.87	ug/Kg	7/31/05	7/31/05
EPA 8260B	2-Hexanone	Not detected	62	0.20	ug/Kg	7/31/05	7/31/05
EPA 8260B	4-Methyl-2-pentanone	Not detected	62	1.1	ug/Kg	7/31/05	7/31/05
EPA 8260B	Acetone	8.5 B J	120	3.4	ug/Kg	7/31/05	7/31/05
EPA 8260B	Benzene	Not detected	6	0.77	ug/Kg	7/31/05	7/31/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.85	ug/Kg	7/31/05	7/31/05
EPA 8260B	Bromodichloromethane	Not detected	6	0.98	ug/Kg	7/31/05	7/31/05
EPA 8260B	Bromomethane	Not detected	12	2.0	ug/Kg	7/31/05	7/31/05
EPA 8260B	Carbon disulfide	Not detected	6	1.3	ug/Kg	7/31/05	7/31/05
EPA 8260B	Carbon tetrachloride	Not detected	6	0.98	ug/Kg	7/31/05	7/31/05
EPA 8260B	Chlorobenzene	Not detected	6	0.60	ug/Kg	7/31/05	7/31/05
EPA 8260B	Chloroethane	Not detected	6	1.9	ug/Kg	7/31/05	7/31/05
EPA 8260B	Chloroform	Not detected	6	1.8	ug/Kg	7/31/05	7/31/05
EPA 8260B	Chloromethane	Not detected	6	2.2	ug/Kg	7/31/05	7/31/05
EPA 8260B	cis-1,2-Dichloroethene	Not detected	6	1.3	ug/Kg	7/31/05	7/31/05
EPA 8260B	cis-1,3-Dichloropropene	Not detected	6	0.58	ug/Kg	7/31/05	7/31/05
EPA 8260B	Dibromochloromethane	Not detected	6	1.1	ug/Kg	7/31/05	7/31/05
EPA 8260B	Ethylbenzene	Not detected	6	0.79	ug/Kg	7/31/05	7/31/05
EPA 8260B	Methyl tert-Butyl Ether	Not detected	6	1.1	ug/Kg	7/31/05	7/31/05
EPA 8260B	Methylene chloride	Not detected	62	5.6	ug/Kg	7/31/05	7/31/05
EPA 8260B	Styrene	Not detected	6	0.85	ug/Kg	7/31/05	7/31/05
EPA 8260B	Tetrachloroethene	0.81 J	6	0.66	ug/Kg	7/31/05	7/31/05
EPA 8260B	Toluene	Not detected	6	0.80	ug/Kg	7/31/05	7/31/05
EPA 8260B	trans-1,2-Dichloroethene	Not detected	6	1.7	ug/Kg	7/31/05	7/31/05
EPA 8260B	trans-1,3-Dichloropropene	Not detected	6	0.53	ug/Kg	7/31/05	7/31/05
EPA 8260B	Trichloroethene	Not detected	6	0.87	ug/Kg	7/31/05	7/31/05
EPA 8260B	Vinyl Acetate	Not detected	62	1.2	ug/Kg	7/31/05	7/31/05
EPA 8260B	Vinyl chloride	Not detected	6	2.1	ug/Kg	7/31/05	7/31/05
EPA 8260B	Xylenes	Not detected	18	0.84	ug/Kg	7/31/05	7/31/05

J = Estimated value, below quantitation limit.

B = The analyte was found in a method blank, as well as in the sample.

Run #: 0731C09  
Instrument: Chico  
Sequence: C050730  
Dilution Factor: 1  
Initials: LF

Printed: 8/10/05 3 29 33 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs

## EPA 8260B

Tetra Tech EC, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: LYNN JEFFERSON

Project: 1990.086B WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-133

Sample Collection Date: 7/29/05

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 48133

APPL ID: AX24113

QCG: S86TTS-050731AC-89439

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	120	52-149		%	7/31/05	7/31/05
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	96.3	65-135		%	7/31/05	7/31/05
EPA 8260B	Surrogate recovery: Toluene-d8	94.8	65-135		%	7/31/05	7/31/05

J = Estimated value, below quantitation limit.  
B = The analyte was found in a method blank, as well as in the sample.

Run #: 0731C09  
Instrument: Chico  
Sequence: C050730  
Dilution Factor: 1  
Initials: LF

Printed: 8/10/05 3:29:33 PM  
APPL-F1-SC-MCRes/MCPQL-REG MDLs



1230 Columbia Street, Suite 500  
San Diego, CA 92101 (619) 234-8696

## NUMBER

10814

[illegible]

White - Laboratory; Pink - Laboratory; Canary - Project File; Mangle - Data Management

00-48156-2 / 0048156-2



## **EPA Method 8260B and CLP Volatiles Volatile Organic Analysis Case Narrative**

ARF: 48157

Project: 1990.086B WATS Bldg 88 Moffett Airfield

State Certification Number: CA1312

Results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

### **Sample Receipt Information:**

The sample group was received August 03, 2005, at 3.5°C. The samples were assigned Analytical Request Form (ARF) number 48157. The sample numbers and requested analysis were compared to the chain of custody. No exception was noted.

**Sample Table**

CLIENT ID	APPL ID	Matrix	Date Sampled	Date Received
86-WOPT-130	AX24190	WATER	08/02/2005	08/03/2005
86-WOPT-137	AX24192	SOIL	08/02/2005	08/03/2005
86-WOPT-138	AX24193	SOIL	08/02/2005	08/03/2005

Percent moisture was determined using CLP 4.0.

### **Sample Preparation:**

The samples were purged according to EPA method 5035 and CLP. All holding times were met.

### **Sample Analysis Information:**

The samples were analyzed according to the method using a Hewlett Packard Gas Chromatograph with a mass spectrometer detector. The sample pH was taken after analysis. The water sample had a pH of 2.

### **Quality Control/Assurance**

#### **Calibrations:**

Initial and continuing calibrations were performed according to the method. For the continuing calibration verification performed on Max file ID: 0802M34W.D, Bromomethane had a 22%D. All other calibration criteria were met.



**Blanks:**

No target analyte was detected above the reporting limits in the method blanks.

**Spikes:**

Laboratory Control Spikes (LCS/LCSD) were used for quality assurance. A second-source standard was used for the LCS. All spike and second-source criteria were met. All recoveries were within acceptable limits.

No sample was designated by the client for MS MSD analysis.

**Surrogates**

All surrogate recoveries were within control limits.

**Tuning:**

The instrument was tuned using BFB. All method criteria were met.

**Internal Standards**

The internal standard area counts were compared to the mid-point of the initial calibration according to method 8260. All method criteria were met.

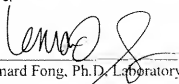
The internal standard area counts were compared to the continuing calibration according to CLP. All method criteria were met.

**Summary:**

No additional problem was encountered.

**CERTIFICATION**

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the hard copy has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

  
\_\_\_\_\_  
Leonard Fong, Ph.D. Laboratory Director / Date

# EPA 8260B

Tetra Tech EC, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: LYNN JEFFERSON

Project: 1990 086B WATS Bldg 88 Molfett Airfield

Sample ID: 86-WOPT-137

Sample Collection Date: 8/2/2005

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 48157

APPL ID: AX24192

OQG: S86TTS-050809AS-89926

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 23.3 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	330	53	ug/Kg	8/10/2005	8/10/2005
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	330	81	ug/Kg	8/10/2005	8/10/2005
EPA 8260B	1,1 2-Trichloroethane	Not detected	330	31	ug/Kg	8/10/2005	8/10/2005
EPA 8260B	1,1-Dichloroethane	Not detected	330	74	ug/Kg	8/10/2005	8/10/2005
EPA 8260B	1,1-Dichloroethene	Not detected	330	52	ug/Kg	8/10/2005	8/10/2005
EPA 8260B	1,2-Dichloroethane	Not detected	330	47	ug/Kg	8/10/2005	8/10/2005
EPA 8260B	1,2-Dichloropropane	Not detected	330	40	ug/Kg	8/10/2005	8/10/2005
EPA 8260B	2-Butanone	Not detected	3300	46	ug/Kg	8/10/2005	8/10/2005
EPA 8260B	2-Hexanone	Not detected	3300	10	ug/Kg	8/10/2005	8/10/2005
EPA 8260B	4-Methyl-2-pentanone	Not detected	3300	61	ug/Kg	8/10/2005	8/10/2005
EPA 8260B	Acetone	Not detected	6500	180	ug/Kg	8/10/2005	8/10/2005
EPA 8260B	Benzene	Not detected	330	41	ug/Kg	8/10/2005	8/10/2005
EPA 8260B	Bromodichloromethane	Not detected	330	45	ug/Kg	8/10/2005	8/10/2005
EPA 8260B	Bromoform	Not detected	330	52	ug/Kg	8/10/2005	8/10/2005
EPA 8260B	Bromomethane	Not detected	650	100	ug/Kg	8/10/2005	8/10/2005
EPA 8260B	Carbon disulfide	Not detected	330	70	ug/Kg	8/10/2005	8/10/2005
EPA 8260B	Carbon tetrachloride	Not detected	330	52	ug/Kg	8/10/2005	8/10/2005
EPA 8260B	Chlorobenzene	Not detected	330	32	ug/Kg	8/10/2005	8/10/2005
EPA 8260B	Chloroethane	Not detected	330	100	ug/Kg	8/10/2005	8/10/2005
EPA 8260B	Chloroform	Not detected	330	93	ug/Kg	8/10/2005	8/10/2005
EPA 8260B	Chloromethane	Not detected	330	120	ug/Kg	8/10/2005	8/10/2005
EPA 8260B	cis-1,2-Dichloroethene	Not detected	330	70	ug/Kg	8/10/2005	8/10/2005
EPA 8260B	cis-1,3-Dichloropropene	Not detected	330	31	ug/Kg	8/10/2005	8/10/2005
EPA 8260B	Dibromochloromethane	Not detected	330	55	ug/Kg	8/10/2005	8/10/2005
EPA 8260B	Ethylbenzene	Not detected	330	42	ug/Kg	8/10/2005	8/10/2005
EPA 8260B	Methyl tert-Butyl Ether	Not detected	330	58	ug/Kg	8/10/2005	8/10/2005
EPA 8260B	Methylene chloride	700 J	3300	300	ug/Kg	8/10/2005	8/10/2005
EPA 8260B	Styrene	Not detected	330	45	ug/Kg	8/10/2005	8/10/2005
EPA 8260B	Tetrachloroethene	Not detected	330	35	ug/Kg	8/10/2005	8/10/2005
EPA 8260B	Toluene	Not detected	330	42	ug/Kg	8/10/2005	8/10/2005
EPA 8260B	trans-1,2-Dichloroethene	Not detected	330	88	ug/Kg	8/10/2005	8/10/2005
EPA 8260B	trans-1,3-Dichloropropene	Not detected	330	28	ug/Kg	8/10/2005	8/10/2005
EPA 8260B	Trichloroethene	230 J	330	46	ug/Kg	8/10/2005	8/10/2005
EPA 8260B	Vinyl Acetate	Not detected	3300	65	ug/Kg	8/10/2005	8/10/2005
EPA 8260B	Vinyl chloride	Not detected	330	110	ug/Kg	8/10/2005	8/10/2005
EPA 8260B	Xylenes	Not detected	980	44	ug/Kg	8/10/2005	8/10/2005

J = Estimated value, below quantitation limit.

Run #: 0809S16  
Instrument: Sweetpea  
Sequence: S050809  
Dilution Factor: 50  
Initials: MV

Printed: 8/22/2005 12:17:41 PM  
APPL-F1-SC-MCRes:MCPL-REG MDLs

# EPA 8260B

Tetra Tech EC, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: LYNN JEFFERSON

Project: 1990.086B WATS Bldg 88 Moffett Airfield

Sample ID: **86-WOPT-137**

Sample Collection Date: 8/2/2005

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 48157

APPL ID: **AX24192**

QCG: S86TTS-050809AS-89926

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	95.9	52-149		%	8/10/2005	8/10/2005
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	102	65-135		%	8/10/2005	8/10/2005
EPA 8260B	Surrogate recovery: Toluene-d8	101	65-135		%	8/10/2005	8/10/2005

J = Estimated value, below quantitation limit.

Run #: 0809S16  
Instrument: Sweetpea  
Sequence: S050809  
Dilution Factor: 50  
Initials: MV

Printed: 8/22/2005 12:17:41 PM  
APPL-F1-SC-MCRes:MCPQL-REG MDLs

# EPA 8260B

Tetra Tech EC, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

Attn: LYNN JEFFERSON

Project: 1990.086B WATS Bldg 88 Moffett Airfield

ARF: 48157

Sample ID: 86-WOPT-138

APPL ID: AX24193

Sample Collection Date: 8/2/2005

QCG: \$86TTS-050809AS-89926

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
(Concentrations and Limits have been adjusted to reflect 16.1 Percent Moisture.)							
EPA 8260B	1,1,1-Trichloroethane	Not detected	300	48	ug/Kg	8/10/2005	8/10/2005
EPA 8260B	1,1,2,2-Tetrachloroethane	Not detected	300	74	ug/Kg	8/10/2005	8/10/2005
EPA 8260B	1,1,2-Trichloroethane	Not detected	300	29	ug/Kg	8/10/2005	8/10/2005
EPA 8260B	1,1-Dichloroethane	Not detected	300	67	ug/Kg	8/10/2005	8/10/2005
EPA 8260B	1,1-Dichloroethene	Not detected	300	47	ug/Kg	8/10/2005	8/10/2005
EPA 8260B	1,2-Dichloroethane	Not detected	300	43	ug/Kg	8/10/2005	8/10/2005
EPA 8260B	1,2-Dichloropropane	Not detected	300	37	ug/Kg	8/10/2005	8/10/2005
EPA 8260B	2-Butanone	Not detected	3000	42	ug/Kg	8/10/2005	8/10/2005
EPA 8260B	2-Hexanone	Not detected	3000	9.5	ug/Kg	8/10/2005	8/10/2005
EPA 8260B	4-Methyl-2-pentanone	Not detected	3000	55	ug/Kg	8/10/2005	8/10/2005
EPA 8260B	Acetone	Not detected	6000	170	ug/Kg	8/10/2005	8/10/2005
EPA 8260B	Benzene	Not detected	300	38	ug/Kg	8/10/2005	8/10/2005
EPA 8260B	Bromodichloromethane	Not detected	300	41	ug/Kg	8/10/2005	8/10/2005
EPA 8260B	Bromoform	Not detected	300	48	ug/Kg	8/10/2005	8/10/2005
EPA 8260B	Bromomethane	Not detected	600	95	ug/Kg	8/10/2005	8/10/2005
EPA 8260B	Carbon disulfide	Not detected	300	64	ug/Kg	8/10/2005	8/10/2005
EPA 8260B	Carbon tetrachloride	Not detected	300	48	ug/Kg	8/10/2005	8/10/2005
EPA 8260B	Chlorobenzene	Not detected	300	29	ug/Kg	8/10/2005	8/10/2005
EPA 8260B	Chloroethane	Not detected	300	92	ug/Kg	8/10/2005	8/10/2005
EPA 8260B	Chloroform	Not detected	300	85	ug/Kg	8/10/2005	8/10/2005
EPA 8260B	Chloromethane	Not detected	300	110	ug/Kg	8/10/2005	8/10/2005
EPA 8260B	cis-1,2-Dichloroethene	Not detected	300	64	ug/Kg	8/10/2005	8/10/2005
EPA 8260B	cis-1,3-Dichloropropene	Not detected	300	28	ug/Kg	8/10/2005	8/10/2005
EPA 8260B	Dibromochloromethane	Not detected	300	51	ug/Kg	8/10/2005	8/10/2005
EPA 8260B	Ethylbenzene	Not detected	300	38	ug/Kg	8/10/2005	8/10/2005
EPA 8260B	Methyl tert-Butyl Ether	Not detected	300	53	ug/Kg	8/10/2005	8/10/2005
EPA 8260B	Methylene chloride	Not detected	3000	270	ug/Kg	8/10/2005	8/10/2005
EPA 8260B	Styrene	Not detected	300	41	ug/Kg	8/10/2005	8/10/2005
EPA 8260B	Tetrachloroethene	Not detected	300	32	ug/Kg	8/10/2005	8/10/2005
EPA 8260B	Toluene	Not detected	300	39	ug/Kg	8/10/2005	8/10/2005
EPA 8260B	trans-1,2-Dichloroethene	Not detected	300	80	ug/Kg	8/10/2005	8/10/2005
EPA 8260B	trans-1,3-Dichloropropene	Not detected	300	26	ug/Kg	8/10/2005	8/10/2005
EPA 8260B	Trichloroethene	Not detected	300	42	ug/Kg	8/10/2005	8/10/2005
EPA 8260B	Vinyl Acetate	Not detected	3000	60	ug/Kg	8/10/2005	8/10/2005
EPA 8260B	Vinyl chloride	Not detected	300	100	ug/Kg	8/10/2005	8/10/2005
EPA 8260B	Xylenes	Not detected	890	41	ug/Kg	8/10/2005	8/10/2005

Run #: 0809S17  
Instrument: Sweetpea  
Sequence: S050809  
Dilution Factor: 50  
Initials: MV

Printed: 8/22/2005 12:17:41 PM  
APPL-F1-SG-MCRes\MCPQL-REG MDLs

# EPA 8260B

Tetra Tech EC, Inc.  
1940 E. Deere Avenue, Suite 200  
Santa Ana, CA 92705

Attn: LYNN JEFFERSON

Project: 1990.086B WATS Bldg 88 Moffett Airfield

Sample ID: 86-WOPT-138

Sample Collection Date: 8/2/2005

APPL Inc.  
4203 West Swift Avenue  
Fresno, CA 93722

ARF: 48157

APPL ID: AX24193

QCG: \$86TTS-050809AS-89926

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8260B	Surrogate recovery: 1,2-Dichloroethane	100	52-149		%	8/10/2005	8/10/2005
EPA 8260B	Surrogate recovery: 4-Bromofluorobenz	107	65-135		%	8/10/2005	8/10/2005
EPA 8260B	Surrogate recovery: Toluene-d8	102	65-135		%	8/10/2005	8/10/2005

Run #: 0809S17  
Instrument: Sweetpea  
Sequence: S050809  
Dilution Factor: 50  
Initials: MV

Printed: 8/23/2005 12:17:41 PM  
APPL-F1 SC-MCRes:MCPQL-REG MDLs

## **APPENDIX C**

### **LOCATION SURVEY DATA**

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## HUNTER SURVEYING, INC.

6216 Main Avenue, Suite A  
Orangevale, CA 95662  
Phone: (916) 988-5800  
Fax: (916) 988-5688

05 August 2005

### Tetra Tech E.C., Inc.

1230 Columbia Street, Suite 500  
San Diego, CA 92101

Attn: Pete Everts

Re: Moffett Federal Airfield - Building 88 Monitoring Wells

The following monitoring wells were surveyed on 03 August 2005. Horizontal positions recorded by conventional total station survey methods, from GPS-RTK established site control points. Vertical elevations surveyed by digital leveling loop methods

	NAD83 (CCS83, ZN3)		NAVD88 ELEVATIONS		
	NORTH	EAST	PVC	RIM	GRND
MW-88-01	1975922.0	6110435.6	19.93	20.46	20.4
MW-88-02	1977212.2	6110253.8	18.17	NA	18.8
MW-88-03	1976585.5	6109886.0	19.08	NA	20.5

### Basis of Coordinates and Elevations:

**NAD83** Horizontal Feet Coordinates, CCS83 Zone 3 (epoch date 2000.35), established by GPS-RTK observations from NASA ARC Control Station *ARC-30* with a check into ARC-44. The horizontal datum was established by Static GPS observations in Dec. 2002 and Jan. 2003 from minimally-constrained provisional values obtained by the *California Spatial Reference Center*

**NAVD88** Vertical Feet Elevations based on digital level loops, established from NASA ARC Control Station *H-111*, elev = 20.15'. (Subtract 2.54' from listed elevations to obtain NGVD29.)

James L. White  
LS 7722



NOTE: 12.25" PVC  
extension added after  
survey (MW-88-03)

12.25" = 1.02 feet  
50

19.08 + 1.02 = 20.10  
20.10 is TOC elev. for W88-3



# COAST SURVEYING, INC.

15031 PARKWAY LOOP, SUITE B, TUSTIN, CA 92780-6527 • (714) 918-6266 • FAX (714) 918-6277  
**MOFFETT FEDERAL AIRFIELD SAMPLING LOCATIONS**

Date Surveyed: April 27, 2005

Station ID	Northing	Easting	Elevation
------------	----------	---------	-----------

Continuous Core Location

CC 88-1	1976221.53	6110054.55	20.60
---------	------------	------------	-------

CPT Location

CPT 88-5	1975809.28	6110202.35	22.45
CPT 88-6	1976224.55	6110035.54	20.75
CPT 88-7	1976543.57	6110055.18	19.60
CPT 88-8	1976713.43	6110073.51	19.17
CPT 88-11	1976849.05	6109712.78	19.14
CPT 88-12	1977430.41	6109704.01	16.98
CPT 88-13	1975925.26	6110434.02	20.42
CPT 88-14	1975777.67	6110117.34	23.21
CPT 88-15	1975735.94	6110175.51	22.82
CPT 88-16	1975775.95	6110463.52	22.02
CPT 88-17	1975806.48	6110527.42	21.99
CPT 88-18	1975918.90	6110568.56	20.86
CPT 88-19	1976243.16	6110315.99	19.43

Soil Gas Probe Location

SG 88-2	1975790.82	6110331.57	21.40
SG 88-3	1976001.47	6110401.09	19.66
SG 88-4	1976229.50	6110315.58	19.51
SG 88-5	1976360.43	6110264.37	19.50
SG 88-6	1976565.61	6110184.72	19.30
SG 88-7	1976848.83	6110073.79	18.99
SG 88-8	1977398.53	6109573.79	16.46
SG 88-9	1977374.45	6109467.33	16.52
SG 88-37	1975837.07	6110312.75	21.31
SG 88-38	1976343.72	6110221.92	19.42
SG 88-39	1975759.82	6110255.10	22.25
SG 88-40	1975766.91	6110340.12	21.78
SG 88-41	1975813.73	6110390.87	21.01
SG 88-42	1975924.30	6110430.32	20.29
SG 88-43	1976294.29	6110290.52	19.93
SG 88-44	1976462.90	6110224.91	19.40
SG 88-45	1976089.07	6110257.02	21.26
SG 88-46	1976234.35	6110210.16	21.08
SG 88-47	1976337.87	6110166.23	20.39
W 1	1975837.09	6110451.16	20.79
W 2	1976118.67	6110353.33	19.51
W 3	1976214.12	6110277.03	19.30

Coordinates are CCS NAD 83, Zone 3, U.S. Survey Feet.

# COAST SURVEYING, INC.

15031 PARKWAY LOOP, SUITE B, TUSTIN, CA 92780-6527 • (714) 918-6266 • FAX (714) 918-6277  
**MOFFETT FEDERAL AIRFIELD SAMPLING LOCATIONS**

Date Surveyed: April 27, 2005

Station ID	Northing	Easting	Elevation
------------	----------	---------	-----------

Elevations are NAVD 88, U.S. Survey Feet.

Positions were determined using NASA Ames Research Center Control Monument ARC-30, a disc set flush in concrete on Northeast corner of raised concrete distribution system, 60' West of Building 250B.

Coordinates and elevations provided by Tetra Tech FW, Inc. for "NASA ARC-30" are:

Northing	Easting	Elevation
1979189.19	6108650.33	13.44

Prepared by me or under my direct supervision  
this 11th day of May, 2005.

Original Signed by Ruel del Castillo

RUEL DEL CASTILLO, PLS 4212  
REGISTRATION EXPIRES 6/30/06



# *COAST* SURVEYING, INC.

15031 PARKWAY LOOP, SUITE B, TUSTIN, CA 92780-6527 • (714) 918-6266 • FAX (714) 918-6277

## MOFFETT FEDERAL AIRFIELD SAMPLING LOCATIONS

Date Surveyed: May 18, 2005

Station ID	Northing	Easting	Elevation
Continuous Core Locations			
CC-88-2	1975707.08	6110153.85	24.12
CC-88-3	1975670.43	6110185.61	23.98
CC-88-4	1975657.36	6110197.22	23.69
CC-88-5	1975606.48	6110182.10	24.61

CPT Locations			
CPT-88-20	1975793.51	6110349.70	21.42
CPT-88-21	1975876.19	6110346.15	21.59
CPT-88-23	1976057.59	6110408.96	20.01
CPT-88-1	1975698.98	6110154.99	24.19
CPT-88-2	1975651.06	6110129.26	24.38
CPT-88-3	1975665.72	6110189.95	23.97
CPT-88-4	1975545.53	6110177.29	24.80
CPT-88-9	1975604.74	6110178.59	24.59
CPT-88-10	1975651.40	6110199.32	23.97
CPT-88-22	1975691.23	6110157.52	24.08

# COAST SURVEYING, INC.

15031 PARKWAY LOOP, SUITE B, TUSTIN, CA 92780-6527 • (714) 918-6266 • FAX (714) 918-6277  
**MOFFETT FEDERAL AIRFIELD SAMPLING LOCATIONS**

Date Surveyed: May 18, 2005

Station ID	Northing	Easting	Elevation
Soil Gas Probe Location			
SG88-1	1975708.71	6110153.19	24.06
SG88-10	1975657.38	6110128.21	24.51
SG88-11	1975569.50	6110100.28	25.29
SG88-12	1975553.53	6110098.64	25.28
SG88-13	1975678.48	6110119.78	24.33
SG88-14	1975639.70	6110118.98	24.38
SG88-15	1975643.89	6110135.12	24.32
SG88-16	1975631.94	6110139.06	24.41
SG88-17	1975609.27	6110146.80	24.82
SG88-18	1975580.94	6110130.38	24.85
SG88-19	1975585.77	6110145.58	24.71
SG88-20	1975587.69	6110168.21	24.66
SG88-21	1975601.30	6110166.88	24.58
SG88-22	1975623.34	6110152.18	24.74
SG88-23	1975658.18	6110201.41	23.52
SG88-24	1975667.57	6110212.01	23.41
SG88-25	1975672.70	6110217.97	23.32
SG88-26	1975675.95	6110207.94	23.69
SG88-27	1975692.21	6110201.30	23.77
SG88-28	1975706.85	6110208.48	23.00
SG88-29	1975694.52	6110190.07	23.63
SG88-30	1975698.29	6110173.05	23.42
SG88-31	1975692.79	6110158.23	23.76
SG88-32	1975679.18	6110162.21	23.95
SG88-33	1975687.05	6110170.83	23.87
SG88-34	1975665.89	6110201.20	24.04
SG88-35	1975732.29	6110180.73	23.18
SG88-36	1975588.84	6110181.78	24.52

Coordinates are CCS NAD 83, Zone 3, U.S. Survey Feet.

Elevations are NAVD 88, U.S. Survey Feet.

Positions were determined using NASA Ames Research Center Control Monument ARC-30, a disc set flush in concrete on Northeast corner of raised concrete distribution system, 60' West of Building 250B.

Coordinates and elevations provided by Tetra Tech FW, Inc. for "NASA ARC-30" are:

Northing	Easting	Elevation
1979189.19	6108650.33	13.44

Prepared by me or under my direct supervision  
this 26th day of May, 2005.

Original Signed by Ruel del Castillo  
RUEL DEL CASTILLO, PLS 4212  
REGISTRATION EXPIRES 6/30/06



**APPENDIX D**

**CONTINUOUS CORE BORING PERMIT,  
CONTINUOUS CORE LITHOLOGIC LOGS,  
MONITORING WELL BORING AND CONSTRUCTION LOGS,  
AND MONITORING WELL DEVELOPMENT LOGS**

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Santa Clara Valley Water District

5750 Almaden Expressway, San Jose, CA 95118-3614

# APPLICATION TO DRILL EXPLORATORY BORINGS

FC 285 (04-29-02)

Page 1 of 2

Date Issued: **3-31-05** Expiration Date: **10-1-05** District Permit No.: **05E00074**

Client (If different from property owner): <b>U.S. NAVY</b>	Property Owner: <b>NASA</b>	Name of Business/Residence at Site: <b>RODNER HAS MOTT FIELD</b>
Client's Address: <b>1220 PACIFIC HIGHWAY</b>	Property Owner's Address: <b>NASA MIS 218-1</b>	Address of Site: <b>FORMER BUILDING # 88</b>
City, State, Zip: <b>DUBLINO, CA 92132-5190</b>	City, State, Zip: <b>MOFFETT FIELD, CA 94035</b>	City, State, Zip: <b>MOFFETT FIELD, CA 94035</b>
Telephone No.: <b>619 534 0052</b>	Telephone No.: <b>650 604 0737</b>	Assessor's Parcel Number of Site: <b>Book 116 Page 18 Parcel 0088</b>

Consulting Company Name: <b>TETRA TECH ECI</b>	Drilling Company Name: <b>WEST HAZ MAT</b>
Address: <b>1230 COLUMBIA ST. SUITE 500</b>	Address: <b>1016 EAST KATELLA AVE</b>
City, State, Zip: <b>SAN DIEGO, CA 92101</b>	City, State, Zip: <b>SAN DIEGO, CA 92105</b>
Telephone No.: <b>LARRY DUOS 619 471 3589</b>	Telephone: <b>714 939 6650</b>
<input type="checkbox"/> Check if address or phone number has changed.	<input type="checkbox"/> Check if address or phone number has changed

In space at right sketch location of proposed boring(s) in sufficient detail to identify location in relation to distances to nearest street and intersection, show distances to any existing structures, landmarks or topographic features

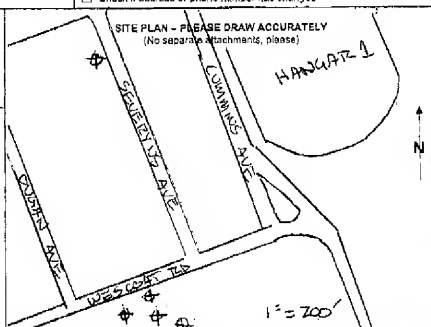
How many borings will be installed on parcel? **5**

- ☐ Proposed borings on SCVWD property  
Essential"
- ☐ Proposed boring within 50 feet of the top of a creek/driver bank"

Page 2, Condition F:  
Type of boring(s):  
150 feet  
100 to 300 feet  
Over 300 feet

Type of boring(s):  
☒ Hollow stem  
☐ Rotary  
☐ CPT/Hydropunch  
☐ Other:

NOTE:  
NO PERMIT IS  
REQUIRED FOR  
BORINGS UNDER  
45 FEET DEEP



I understand that all work is to be done in accordance with S.C.V.W.D. Ordinance 90-1, "The District Well Standards," and the conditions of this permit (see page 2). I also certify that the information given above is correct. NOTE: All applicable signatures must be present before permit will be processed

Signature of Property Owner/Agent: <i>Donald M. Chuck</i>	Print/Type Name: <b>DONALD M. CHUCK</b>	Date: <b>3/21/05</b>
Signature of Client Agent: <i>William Doctor</i>	Print/Type Name: <b>Wilson Doctor</b>	Date: <b>3/17/05</b>
Signature of Driller/Agent: <i>LARRY DUOS</i>	Print/Type Name: <b>LARRY DUOS</b>	Date: <b>3/17/05</b>
Signature of Consultant: <i>LARRY DUOS</i>	Print/Type Name: <b>LARRY DUOS</b>	Date: <b>3/17/05</b>

IMPORTANT: A minimum 24 hour notice must be given to SCVWD, Inspection Dept., prior to installing the monitor seal. Call (603) 265-2607 Ext. 2060. For weekends, holidays, and after hours call (603) 265-2607 ext. 2120

Santa Clara Valley Water District

## EXPLORATORY BORING(S) CONSTRUCTION PERMIT

FC 285 (04-26-02)

Page 2 of 2

## GENERAL CONDITIONS

- A. PERMIT (Telephone 408-265-2607, Ext. 2660) MUST BE NOTIFIED A MINIMUM OF ONE WORKING DAY BEFORE THE EXPLORATORY BORING IS BACKFILLED. An authorized District representative must be on site to witness the sealing operation. This requirement may be waived by an authorized District representative. If the District waives the inspection requirement, the District may request the Permittee(s) to furnish certification under penalty of perjury that the seal was constructed in accordance with the District Well Standards.
- B. This Permit is valid only for the purpose specified herein. Boring destruction methods authorized under this Permit may not be changed except by written approval of an authorized District representative, and only if the District believes that such a change will result in equal or superior compliance with the District and State Well Standards (e.g. if the District representative finds that site conditions warrant such a change).
- C. This Permit is only valid for the Assessor's Parcel Number Indicated on it.
- D. This Permit may be voided if it contains incorrect information.
- E. Borings shall be sealed within 24 hours following completion of testing or sampling activities. Borings shall not be left in such a condition as to allow for the introduction of surface waters or foreign materials into them. Borings shall be secured such that they do not endanger public health.
- F. If any work associated with this Permit will take place within 50 feet of the top of the banks of a stream or watercourse, or on SCVWD property, an enforcement or construction permit must be granted by the District's Community Projects Review Unit (telephone (408) 265-2607, Ext. 2350, 2217, or 2253).
- G. The Permittee(s) shall assume entire responsibility for all activities and uses under this Permit and shall indemnify, defend, and hold the District, its officers, agents, and employees free and harmless from any and all expense, cost, and liability in connection with or resulting from the granting or exercise of this Permit including, but not limited to, property damage, personal injury, and wrongful death.
- Permittees are required to be in full compliance with Cal/OSHA California Labor Code Section 6300.
- I. A current C-57 or C-61 Contractors License is required for work associated with this Permit.
- J. Permittee, permittee's contractors, consultants or agents shall be responsible to assure that all materials or waters generated during drilling, boring destruction, and/or other activities associated with this Permit will be safely handled, properly managed, and disposed of according to all applicable federal, state, and local statutes regulating such. In no case shall these materials and/or waters be allowed to enter, or potentially enter, on- or off-site storm sewers, dry wells, or waterways or be allowed to move off the property where the work is being completed.
- K. The driller and consultant (if applicable) shall have an active copy of their Worker's Compensation Insurance on file with the District.
- L. This Permit shall expire if not exercised within 180 calendar days of its approval, unless an extension of the Permit expiration date is granted by an authorized District representative.
- M. This Permit shall be kept on-site during the completion of all activities associated with it and shall immediately be presented to an authorized District representative upon request.

Permit Approved By:

Date:









3-31-05



# TETRA TECH EC, INC.

## LOG OF BORING CC-88-1 (Sheet 1 of 3)

Client: US NAVY	Drilling Company: West Hazmat
Project: WATS OPT ADDENDUM - BUILDING 88	Drilling Method: Hollow-stem auger
Project Number: 1990.086E	Sampling Method: continuous core
Location: FORMER NAS MOFFETT FIELD, CA	Borehole Diameter: 8.75 in. 0-59 Ft.
Geologist: L. Dudas	Northing: 1,976,221.53 Feet (NAD 83; NAVD 88)
Date Started: April 6, 2005	Easting: 6,110,054.55 Feet (NAD 83; NAVD 88)
Date Completed: April 6, 2005	Ground Surface Elevation: 20.60 Feet amsl
Total Depth: 59.0 Feet bgs	Top of Casing Elevation:








Depth (ft.)	Time	Blow Counts	Samples	Sample ID	PID Readings PPM	Comments	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation (ft.)
							CL		0 to 0.5 ft. asphalt	20
							ML		0.5 to 4 ft. CLAY: dark brownish gray (2.5Y 4/2), moist, 90% fines with medium plasticity, 10% fine to medium sand.	
5							ML		4 to 5.5 ft. GRAVELLY SILT: light brownish gray (10YR 6/2), moist, 60% fines with medium plasticity, 30% medium to coarse subangular gravel (calcareous nodules), 10% medium to coarse sand.	15
	1042		☒	86-WOPT-305	3.2		SM		5.5 to 6 ft. SILT: dark brownish gray (2.5Y 4/2), moist, 90% non-plastic fines, 10% fine to medium sand.	
	1054		☒	86-WOPT-306	2.6				6 to 8.5 ft. SILTY SAND: dark grayish brown (10YR 4/2), wet, 70% fine to medium subrounded sand, 30% non-plastic fines.	
10	1054			86-WOPT-302			ML		8.5 to 13.5 ft. SILT WITH SAND: dark grayish brown (10YR 4/2), moist, 85% fines with medium plasticity, 15% fine to medium sand.	10
							SM		13.5 to 14 ft. SILTY SAND: dark grayish brown (10YR 4/2), moist, 70% fine sand, 30% non-plastic fines.	
15	1100		☒	86-WOPT-307 86-WOPT-303	3.5		SP		14 to 16.5 ft. POORLY GRADED SAND: dark brown (10YR 4/3), wet, 100% fine to medium angular to subrounded sand, trace fine subangular gravel, trace fines.	5
									16.5 to 19 ft. No recovery.	
20							SP		19 to 21 ft. POORLY GRADED SAND WITH GRAVEL: dark brown (10YR 4/2), wet, 80% fine to medium to coarse subangular to subrounded sand, 20% fine subangular gravel.	0
									21 to 29 ft. No recovery, approximately 1 foot of sand and gravel slough at bottom of sampler.	

Notes: Boring Log Reviewed By: D. Goldman 7/15/05  
bgs = below ground surface  
AMSL = above mean sea level  
NA = not applicable

# TETRA TECH EC, INC.

## LOG OF BORING CC-88-1 (Sheet 2 of 3)

Client: US NAVY	Drilling Company: West Hazmat
Project: WATS OPT ADDENDUM - BUILDING 88	Drilling Method: Hollow-stem auger
Project Number: 1990.086E	Sampling Method: continuous core
Location: FORMER NAS MOFFETT FIELD, CA	Borehole Diameter: 8.75 in. 0-59 Ft.
Geologist: L. Dudas	Northing: 1,976,221.53 Feet (NAD 83; NAVD 88)
Date Started: April 6, 2005	Easting: 6,110,054.55 Feet (NAD 83; NAVD 88)
Date Completed: April 6, 2005	Ground Surface Elevation: 20.60 Feet amsl
Total Depth: 59.0 Feet bgs	Top of Casing Elevation:


Depth (ft.)	Time	Blow Counts	Samples	Sample ID	PID Readings PPM	Comments	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation (ft.)
30										-5
							SM		29 to 33 ft. SILTY SAND: dark grayish brown (10YR 4/2), wet, 75% fine sand, 25% non-plastic fines.	-10
35							SP		33 to 36 ft. POORLY GRADED SAND: dark grayish brown (10YR 4/3), wet, 95% fine to coarse angular to subrounded sand, 5% fine angular to subrounded gravel, trace non-plastic fines.	-15
	1200			86-WOPT-308	6		ML		36 to 39 ft. SILT: brown (10YR 5/3), moist, 90% fines with medium plasticity, 10% fine sand, trace fine subangular to subrounded gravel.	
40									39 to 41.5 ft. No recovery.	-20
							ML		41.5 to 43 ft. SILT: dark brown (10YR 4/2), moist, 90% fines with no to low plasticity, 10% fine sand, trace fine subangular gravel.	
							SW-SM		43 to 44 ft. WELL GRADED SAND WITH SILT: dark brown (10YR 4/2), wet, 90% fine to coarse sand, 10% non-plastic fines, trace fine gravel.	
45									44 to 48.5 ft. No recovery.	-25
							ML		48.5 to 49 ft. SILT: brown (10YR 5/3), moist, 90% non-plastic fines, 10% fine sand, trace subangular to	

Notes: Boring Log Reviewed By: D. Goldman 7/15/05  
bgs = below ground surface  
AMSL = above mean sea level  
NA = not applicable

# TETRA TECH EC, INC.

## LOG OF BORING CC-88-1 (Sheet 3 of 3)

Client: US NAVY	Drilling Company: West Hazmat
Project: WATS OPT ADDENDUM - BUILDING 88	Drilling Method: Hollow-stem auger
Project Number: 1990.086E	Sampling Method: continuous core
Location: FORMER NAS MOFFETT FIELD, CA	Borehole Diameter: 8.75 in.0-59 Ft.
Geologist: L. Dudas	Northing: 1,976,221.53 Feet (NAD 83; NAVD 88)
Date Started: April 6, 2005	Easting: 6,110,054.55 Feet (NAD 83; NAVD 88)
Date Completed: April 6, 2005	Ground Surface Elevation: 20.60 Feet amsl
Total Depth: 59.0 Feet bgs	Top of Casing Elevation:

Depth (ft.)	Time	Blow Counts	Samples	Sample ID	PID Readings PPM	Comments	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation (ft.)
55	1250 1253		<input checked="" type="checkbox"/>	86-WOPT-301 86-WOPT-304	67.5		ML SP ML		subrounded fine gravel 49 to 50 ft. No recovery 50 to 51 ft. SANDY SILT: brown (10YR 5/3), moist, 70% non-plastic fines, 30% fine sand, trace subrounded fine gravel 51 to 52.5 ft. POORLY GRADED SAND: dark brown (10YR 4/2), wet, 80% fine to coarse subrounded sand, 10% non-plastic fines, 10% fine gravel 52.5 to 59 ft. SILT: brown (10YR 4/3), moist, 85% fines of low to medium plasticity, 15% fine sand.	-30 -35
60									Boring terminated at 59 feet bgs. Groundwater encountered while drilling at 8 feet bgs. Boring was tremie backfilled with portland cement/5% bentonite mix to surface.	-40
65										-45
70										-50

Notes: Boring Log Reviewed By: D. Goldman 7/15/05  
bgs = below ground surface  
AMSL = above mean sea level  
NA = not applicable

# TETRA TECH EC, INC.

## LOG OF BORING CC-88-2 (Sheet 1 of 3)

Client: US NAVY	Drilling Company: West Hazmat
Project: WATS OPT ADDENDUM - BUILDING 88	Drilling Method: Hollow-stem auger
Project Number: 1990.086E	Sampling Method: continuous core
Location: FORMER NAS MOFFETT FIELD, CA	Borehole Diameter: 8.75 in.0-59 Ft.
Geologist: L. Dudas	Northing: 1,975,707.08 Feet (NAD 83; NAVD 88)
Date Started: April 7, 2005	Easting: 6,110,153.85 Feet (NAD 83; NAVD 88)
Date Completed: April 7, 2005	Ground Surface Elevation: 24.12 Feet amsl
Total Depth: 59.0 Feet bgs	Top of Casing Elevation:

Depth (ft.)	Time	Blow Counts	Samples	Sample ID	PID Readings PPM	Comments	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation (ft.)
0							GW		0 to 1.5 ft. FILL: yellowish brown (10YR 5/4), moist, 50% fine to coarse subangular gravel, 40% fine to coarse subangular sand, 10% non-plastic fines.	24.12
5							CL		1.5 to 11 ft. CLAY: black, moist, 90% fines with medium to high plasticity, 10% fine sand, trace angular fine gravel (calcareous nodules), grades to gray (10YR 5/1)	20
10									grades to dark grayish brown (10YR 4/2)	15
15	0810			86-WOPT-312 86-WOPT-320	0		ML		from 8 to 10 feet, 10% medium to coarse subangular sand	10
20	0820			86-WOPT-313	0		SM		11 to 18 ft. SILT WITH SAND: dark gray (10YR 4/N), wet, 85% non-plastic fines, 15% fine sand.	5
	0830			86-WOPT-321					from 13 to 14 feet, no recovery.	
	0832			86-WOPT-311	10.4		ML		grades to very dark gray (2.5 YR 3/N) with trace 1/4-inch diameter roots	0
									18 to 20.5 ft. SILTY SAND: very dark gray (2.5 YR 3/N), wet, 85% fine to medium subrounded sand, 15% non-plastic fines.	
									20.5 to 26 ft. SILT WITH SAND: dark gray (2.5Y 4/N), moist, 80% fines with low plasticity, 20% fine to medium sand.	

Notes: Boring Log Reviewed By: D. Goldman 7/15/05  
bgs = below ground surface  
AMSL = above mean sea level  
NA = not applicable

# TETRA TECH EC, INC.

## LOG OF BORING CC-88-2 (Sheet 2 of 3)

Client: US NAVY	Drilling Company: West Hazmat
Project: WATS OPT ADDENDUM - BUILDING 88	Drilling Method: Hollow-stem auger
Project Number: 1990.086E	Sampling Method: continuous core
Location: FORMER NAS MOFFETT FIELD, CA	Borehole Diameter: 8.75 in.0-59 Ft.
Geologist: L. Dudas	Northing: 1,975,707.08 Feet (NAD 83; NAVD 88)
Date Started: April 7, 2005	Easting: 6,110,153.85 Feet (NAD 83; NAVD 88)
Date Completed: April 7, 2005	Ground Surface Elevation: 24.12 Feet amsl
Total Depth: 59.0 Feet bgs	Top of Casing Elevation:

Depth (ft.)	Time	Blow Counts	Samples	Sample ID	PID Readings PPM	Comments	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation (ft.)
0902			☒	86-WOPT-314	3.2		ML			
0907			☒	86-WOPT-315	7.1		SW-SM			
0910			☒	86-WOPT-316	1.7		CL		26 to 26.5 ft. WELL GRADED SAND WITH SILT: dark brown (10YR 4/3), wet, 90% fine to coarse subangular sand, 10% non-plastic fines, trace fine subangular gravel	
									26.5 to 29 ft. CLAY: dark gray (5Y 4/1), moist, 90% fines with medium to high plasticity, 10% fine sand.	
									29 to 32 ft. poor recovery	-5
30										
									32 to 44 ft. SILT: yellow brown (10YR 5/4), moist, 90% fines with medium plasticity, 10% fine sand, trace angular gravel (calcareous nodules).	-10
35							ML			
40	0945		☒	86-WOPT-317	1.2					
									44 to 48 ft. No recovery. Some medium sand slough in sampler. Driller feels sand from 46 to 48 feet.	-20
45										
	1000		☒	86-WOPT-318	4.8		ML		48 to 49 ft. SILT: dark yellowish brown (10YR 4/4), moist, 90% non-plastic fines, 10% fine sand.	
									49 to 54 ft. No recovery. 1.5 foot of sand and gravel slough	-25

Notes: Boring Log Reviewed By: D. Goldman 7/15/05  
bgs = below ground surface  
AMSL = above mean sea level  
NA = not applicable

# TETRA TECH EC, INC.

## LOG OF BORING CC-88-2 (Sheet 3 of 3)

Client: US NAVY	Drilling Company: West Hazmat
Project: WATS OPT ADDENDUM - BUILDING 88	Drilling Method: Hollow-stem auger
Project Number: 1990.086E	Sampling Method: continuous core
Location: FORMER NAS MOFFETT FIELD, CA	Borehole Diameter: 8.75 in.0-59 Ft.
Geologist: L. Dudas	Northing: 1,975,707.08 Feet (NAD 83; NAVD 88)
Date Started: April 7, 2005	Easting: 6,110,153.85 Feet (NAD 83; NAVD 88)
Date Completed: April 7, 2005	Ground Surface Elevation: 24.12 Feet amsl
Total Depth: 59.0 Feet bgs	Top of Casing Elevation:

Depth (ft.)	Time	Blow Counts	Samples	Sample ID	PID Readings PPM	Comments	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation (ft.)
55	1035		☒	86-WOPT-319	7.8				In sampler.	
							ML		54 to 59 ft. SILT WITH SAND: dark yellow brown (10YR 4/4), moist, 85% fines with medium plasticity, 15% fine sand.	-30
60									Boring terminated at 59 feet bgs. Groundwater encountered while drilling at 11 feet bgs. Boring was tremie backfilled with portland cement/5% bentonite mix to surface.	-35
65										-40
70										-45
										-50

Notes: Boring Log Reviewed By: D. Goldman 7/15/05  
 bgs = below ground surface  
 AMSL = above mean sea level  
 NA = not applicable

# TETRA TECH EC, INC.

## LOG OF BORING CC-88-3 (Sheet 1 of 3)

Client: US NAVY	Drilling Company: West Hazmat
Project: WATS OPT ADDENDUM - BUILDING 88	Drilling Method: Hollow-stem auger
Project Number: 1990.086E	Sampling Method: continuous core
Location: FORMER NAS MOFFETT FIELD, CA	Borehole Diameter: 8.75 in. 0-59 Ft.
Geologist: L. Dudas	Northing: 1,975,670.43 Feet (NAD 83; NAVD 88)
Date Started: April 7, 2005	Easting: 6,110,185.61 Feet (NAD 83; NAVD 88)
Date Completed: April 7, 2005	Ground Surface Elevation: 23.98 Feet amsl
Total Depth: 59.0 Feet bgs	Top of Casing Elevation:








Depth (ft.)	Time	Blow Counts	Samples	Sample ID	PID Readings PPM	Comments	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation (ft.)
5							SM		0 to 7 ft. FILL: dark yellow brown (10YR 3/4), moist, 60% fine to coarse subrounded sand, 30% fines with low plasticity, 10% fine subrounded gravel.	20
1415			☒	86-WOPT-322 86-WOPT-330	1.9		CL		7 to 9.5 ft. CLAY: very dark gray (10YR 3/1), moist, 90% fines with high plasticity, 10% fine sand.	15
1435 1440			☒ ☒	86-WOPT-323 86-WOPT-324	2.8 6.9		ML		9.5 to 12 ft. SILT: dark gray brown (2.5Y 4/2), wet, 90% non-plastic fines, 10% fine sand.	
1443			☒	86-WOPT-325	13.2		SP		12 to 14 ft. No recovery.	10
15							ML		14 to 15.5 ft. POORLY GRADED SAND: dark grayish brown (10YR 4/2), wet, 90% fine sand, 10% non-plastic fines.	
1455			☒	86-WOPT-326	6.8		SP		15.5 to 18 ft. SILT: black (10YR 2/1), moist, 90% fines with medium plasticity, 10% fine sand, trace 1/4-inch diameter roots.	5
20							CL		18 to 20 ft. POORLY GRADED SAND: very dark gray (2.5Y 3/1), wet, 90% fine sand, 10% non-plastic fines, slight solvent odor.	
							ML		20 to 22 ft. CLAY WITH GRAVEL: very dark gray (2.5Y 3/1), moist, 85% fines with high plasticity, 15% fine subangular gravel.	
							ML		22 to 24 ft. SILT: very dark gray (2.5Y 3/1), wet, 90% non-plastic fines, 10% fine sand, trace fine gravel.	
							SW		24 to 27.5 ft. WELL GRADED SAND WITH GRAVEL: dark	0

Notes: Boring Log Reviewed By: D. Goldman 7/15/05  
bgs = below ground surface  
AMSL = above mean sea level  
NA = not applicable

# TETRA TECH EC, INC.

## LOG OF BORING CC-88-3 (Sheet 2 of 3)

Client: US NAVY	Drilling Company: West Hazmat
Project: WATS OPT ADDENDUM - BUILDING 88	Drilling Method: Hollow-stem auger
Project Number: 1990.086E	Sampling Method: continuous core
Location: FORMER NAS MOFFETT FIELD, CA	Borehole Diameter: 8.75 in. 0-59 Ft.
Geologist: L. Dudas	Northing: 1,975,670.43 Feet (NAD 83; NAVD 88)
Date Started: April 7, 2005	Easting: 6,110,185.61 Feet (NAD 83; NAVD 88)
Date Completed: April 7, 2005	Ground Surface Elevation: 23.98 Feet amsl
Total Depth: 59.0 Feet bgs	Top of Casing Elevation:

Depth (ft.)	Time	Blow Counts	Samples	Sample ID	PID Readings PPM	Comments	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation (ft.)
1505			☒	86-WOPT-327			SW		yellowish brown (10YR 4/4), wet, 75% fine to coarse subangular sand, 25% fine subangular to subrounded gravel.	
30							CL		27.5 to 29 ft. CLAY: black, moist, 90% fines with high plasticity, 10% fine sand.	-5
							ML		29 to 33 ft. SILT: black, moist, 90% non-plastic fines with medium plasticity, 10% fine sand.	
35							ML		33 to 37 ft. SILT: gray (5Y 5/1), wet, 90% fines with low plasticity, 10% fine sand.	-10
							ML		from 36.5 to 37 feet, zone of fractures and/or root tubes with water. 37 to 41 ft. SILT: yellowish brown (10YR 5/4), moist, 90% fines with low to no plasticity, 10% fine sand, trace fine gravel.	-15
40							SW		41 to 41.5 ft. WELL GRADED SAND WITH GRAVEL: yellowish brown (10YR 5/4), wet, 70% fine to coarse subangular sand, 30% fine gravel.	
45	1555		☒	86-WOPT-328	0		SW		44 to 45 ft. WELL GRADED SAND: dark brown (10YR 4/3), wet, 90% fine to medium sand, 10% fine subrounded gravel, trace non-plastic fines. 45 to 49 ft. No recovery. 2-feet of sand and gravel slough in sampler.	-20
									49 to 54 ft. No recovery	-25

Notes: Boring Log Reviewed By: D. Goldman 7/15/05  
bgs = below ground surface  
AMSL = above mean sea level  
NA = not applicable



# TETRA TECH EC, INC.

## LOG OF BORING CC-88-3 (Sheet 3 of 3)

Client: US NAVY	Drilling Company: West Hazmat
Project: WATS OPT ADDENDUM - BUILDING 88	Drilling Method: Hollow-stem auger
Project Number: 1990.086E	Sampling Method: continuous core
Location: FORMER NAS MOFFETT FIELD, CA	Borehole Diameter: 8.75 in.0-59 Ft.
Geologist: L. Dudas	Northing: 1,975,670.43 Feet (NAD 83; NAVD 88)
Date Started: April 7, 2005	Easting: 6,110,185.61 Feet (NAD 83; NAVD 88)
Date Completed: April 7, 2005	Ground Surface Elevation: 23.98 Feet amsl
Total Depth: 59.0 Feet bgs	Top of Casing Elevation:

Depth (ft.)	Time	Blow Counts	Samples	Sample ID	PID Readings PPM	Comments	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation (ft.)
55							ML		54 to 59 ft. SILT: brown (10YR 5/3), moist, 90% fines with medium plasticity, 10% fine sand.	-30
60									Boring terminated at 59 feet bgs. Groundwater encountered while drilling at 9.5 feet bgs. Boring was tremie backfilled with portland cement/5% bentonite mix to surface.	-35
65										-40
70										-45
										-50

Notes: Boring Log Reviewed By: D. Goldman 7/15/05  
bgs = below ground surface  
AMSL = above mean sea level  
NA = not applicable

# TETRA TECH EC, INC.

## LOG OF BORING CC-88-4 (Sheet 1 of 3)

Client: US NAVY	Drilling Company: West Hazmat
Project: WATS OPT ADDENDUM - BUILDING 88	Drilling Method: Hollow-stem auger
Project Number: 1990.086E	Sampling Method: continuous core
Location: FORMER NAS MOFFETT FIELD, CA	Borehole Diameter: 8.75 in. 0-59 Ft.
Geologist: L. Dudas	Northing: 1,975,657.36 Feet (NAD 83; NAVD 88)
Date Started: April 8, 2005	Easting: 6,110,197.22 Feet (NAD 83; NAVD 88)
Date Completed: April 8, 2005	Ground Surface Elevation: 23.69 Feet amsl
Total Depth: 59.0 Feet bgs	Top of Casing Elevation:

Depth (ft.)	Time	Blow Counts	Samples	Sample ID	PID Readings PPM	Comments	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation (ft.)
0							SW-SM		0 to 3 ft. FILL: yellowish brown (10YR 5/4), moist, 60% fine to coarse sand, 30% fine subangular gravel, 10% non-plastic fines.	
5	0755		☒	86-WOPT-338			CL		3 to 9 ft. CLAY: grayish brown (10YR 4/2), moist, 90% fines with medium to high plasticity, 10% fine sand, trace fine angular gravel (calcareous nodules) from 4-7.5 feet, very dark gray (10YR 3/1)	20
10	0803		☒	86-WOPT-332	0		ML		9 to 11 ft. SANDY SILT: grayish brown (10YR 5/2), wet, 70% non-plastic fines, 30% fine sand.	15
									11 to 14 ft. No recovery.	
15							ML		14 to 16 ft. SANDY SILT: grayish brown (10YR 5/2), wet, 70% non-plastic fines, 30% fine sand.	10
									16 to 29 ft. No recovery.	5
20										0

Notes: Boring Log Reviewed By: D. Goldman 7/15/05  
bgs = below ground surface  
AMSL = above mean sea level  
NA = not applicable

# TETRA TECH EC, INC.

## LOG OF BORING CC-88-4 (Sheet 2 of 3)

Client: US NAVY	Drilling Company: West Hazmat
Project: WATS OPT ADDENDUM - BUILDING 88	Drilling Method: Hollow-stem auger
Project Number: 1990.086E	Sampling Method: continuous core
Location: FORMER NAS MOFFETT FIELD, CA	Borehole Diameter: 8.75 in.0-59 Ft.
Geologist: L. Dudas	Northing: 1,975,657.36 Feet (NAD 83; NAVD 88)
Date Started: April 8, 2005	Easting: 6,110,197.22 Feet (NAD 83; NAVD 88)
Date Completed: April 8, 2005	Ground Surface Elevation: 23.69 Feet amsl
Total Depth: 59.0 Feet bgs	Top of Casing Elevation:



Depth (ft.)	Time	Blow Counts	Samples	Sample ID	PID Readings PPM	Comments	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation (ft.)
30	0845		☒	86-WOPT-333	0		ML		29 to 31 ft. SILT, dark gray (2.5Y 4/1), moist, 90% fines with medium plasticity, 10% fine sand, trace angular fine gravel (calcareous nodules).	-5
									31 to 34 ft. No recovery.	
35	0854		☒	86-WOPT-334	3.2		CL		34 to 41 ft. CLAY WITH SAND: brown (10YR 4/3) and yellowish brown (10YR 4/4), wet, 85% fines with medium to high plasticity, 15% fine to medium sand, trace calcareous nodules. at 36 feet, zone of water bearing fractures or root tubes with water.	-10
40	0906		☒	86-WOPT-335 86-WOPT-339	6.5		SW		41 to 42.5 ft. WELL GRADED SAND WITH GRAVEL: yellowish brown (10YR 4/4), wet, 80% fine to coarse subrounded sand, 15% fine subrounded gravel, 5% non-plastic fines.	-15
45									42.5 to 49 ft. No recovery.	-20
	0935		☒	86-WOPT-336	1		CL		49 to 57 ft. CLAY WITH SAND: yellowish brown (10YR 4/4).	-25

Notes: Boring Log Reviewed By: D. Goldman 7/15/05  
bgs = below ground surface  
AMSL = above mean sea level  
NA = not applicable

# TETRA TECH EC, INC.

## LOG OF BORING CC-88-4 (Sheet 3 of 3)

Client: US NAVY	Drilling Company: West Hazmat
Project: WATS OPT ADDENDUM - BUILDING 88	Drilling Method: Hollow-stem auger
Project Number: 1990.086E	Sampling Method: continuous core
Location: FORMER NAS MOFFETT FIELD, CA	Borehole Diameter: 8.75 in.0-59 Ft.
Geologist: L. Dudas	Northing: 1,975,657.36 Feet (NAD 83; NAVD 88)
Date Started: April 8, 2005	Easting: 6,110,197.22 Feet (NAD 83; NAVD 88)
Date Completed: April 8, 2005	Ground Surface Elevation: 23.69 Feet amsl
Total Depth: 59.0 Feet bgs	Top of Casing Elevation:




Depth (ft.)	Time	Blow Counts	Samples	Sample ID	PID Readings PPM	Comments	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation (ft.)
55							CL		moist, 75% fines with medium to high plasticity, 25% fine sand, trace angular fine gravel.  grades to brownish yellow (10YR 6/6)	-30
60	0945		☒	86-WOPT-337 86-WOPT-340	1.2		ML		57 to 59 ft. SILT WITH SAND: dark gray (10YR 4/1), 75% fines with low plasticity, 25% fine sand.	-35
65									Boring terminated at 59 feet bgs. Groundwater encountered while drilling at 9 feet bgs. Boring was tremie backfilled with portland cement/5% bentonite mix to surface.	-40
70										-45
										-50

Notes: Boring Log Reviewed By: D. Goldman 7/15/05  
bgs = below ground surface  
AMSL = above mean sea level  
NA = not applicable

# TETRA TECH EC, INC.

## LOG OF BORING CC-88-5 (Sheet 1 of 3)

Client: US NAVY	Drilling Company: West Hazmat
Project: WATS OPT ADDENDUM - BUILDING 88	Drilling Method: Hollow-stem auger
Project Number: 1990.086E	Sampling Method: continuous core
Location: FORMER NAS MOFFETT FIELD, CA	Borehole Diameter: 8.75 in.0-59 Ft.
Geologist: L. Dudas	Northing: 1,975,606.48 Feet (NAD 83; NAVD 88)
Date Started: April 8, 2005	Easting: 6,110,182.10 Feet (NAD 83; NAVD 88)
Date Completed: April 8, 2005	Ground Surface Elevation: 24.61 Feet amsl
Total Depth: 59.0 Feet bgs	Top of Casing Elevation:

Depth (ft.)	Water Level	Samples	Sample Number	Time	PID Readings PPM	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation (ft.)
5						SW-SM		0 to 5 ft. FILL: very dark yellowish brown (10YR 3/2), moist, 60% fine to coarse subangular sand, 30% fine angular gravel, 10% fines with low plasticity.	20
10								5 to 24 ft. No recovery. Cobble-sized piece of concrete blocking sample tube.	15
15								No recovery.	10
20								No recovery. Clayey slough in sample tube.	5
						ML		No recovery. Fine to coarse sand slough in sample tubes.	0
								24 to 25 ft. SILT: brown (10YR 4/3), wet, 100% fines,	

Notes: Boring Log Reviewed By: D. Goldman 7/15/05

bgs = below ground surface

AMSL = above mean sea level

NA = not applicable

PID = photo-ionization detector

# TETRA TECH EC, INC.

## LOG OF BORING CC-88-5 (Sheet 2 of 3)

Client: US NAVY	Drilling Company: West Hazmat
Project: WATS OPT ADDENDUM - BUILDING 88	Drilling Method: Hollow-stem auger
Project Number: 1990.086E	Sampling Method: continuous core
Location: FORMER NAS MOFFETT FIELD, CA	Borehole Diameter: 8.75 in.0-59 Ft.
Geologist: L. Dudas	Northing: 1,975,606.48 Feet (NAD 83; NAVD 88)
Date Started: April 8, 2005	Easting: 6,110,182.10 Feet (NAD 83; NAVD 88)
Date Completed: April 8, 2005	Ground Surface Elevation: 24.61 Feet amsl
Total Depth: 59.0 Feet bgs	Top of Casing Elevation:

Depth (ft.)	Water Level	Samples	Sample Number	Time	PID Readings PPM	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation (ft.)
30		☒	86-WOPT-341 86-WOPT-342 86-WOPT-348	1150 1155		SW		non-plastic, trace fine to medium sand. 25 to 28 ft. WELL GRADED SAND: dark yellowish brown (10YR 4/4), wet, 100% fine to coarse subrounded sand, trace non-plastic fines.	
						CL		26 to 29 ft. CLAY: dark olive gray (5Y 3/2), moist, 100% fines with high plasticity.	
35						ML		29 to 41 ft. SILT: dark olive gray (5Y 3/2), moist, 90% fines with medium plasticity, 10% fine sand, trace fine subangular gravel (calcareous nodules).	-5
								from 36-37, zone of water-bearing fractures	-10
40		☒	86-WOPT-343	1210					-15
		☒	86-WOPT-344	1220		SP		41 to 42.5 ft. POORLY GRADED SAND: grayish brown (2.5Y 5/2), wet, 90% fine sand, 10% non-plastic fines.	
		☒	86-WOPT-349	1200		SW		42.5 to 44 ft. WELL GRADED SAND WITH GRAVEL: very dark grayish brown (10YR 3/2), wet, 60% fine to coarse subangular sand, 30% fine subangular gravel, 5% non-plastic fines.	
45						CL		44 to 48 ft. CLAY: brown (10YR 5/3), moist, 90% fines with medium plasticity, 10% fine to coarse sand.	-20
		☒	86-WOPT-345	1230		SW		48 to 49 ft. WELL GRADED SAND WITH GRAVEL: dark grayish brown (10YR 4/2), wet, 70% fine to coarse subangular sand, 25% fine to coarse subangular gravel, 5%	-25
						CL			

Notes: Boring Log Reviewed By: D. Goldman 7/15/05

bgs = below ground surface

AMSL = above mean sea level

NA = not applicable

PID = photo-ionization detector

# TETRA TECH EC, INC.

## LOG OF BORING CC-88-5 (Sheet 3 of 3)

Client: US NAVY

Drilling Company: West Hazmat

Project: WATS OPT ADDENDUM - BUILDING 88

Drilling Method: Hollow-stem auger

Project Number: 1990.086E

Sampling Method: continuous core

Location: FORMER NAS MOFFETT FIELD, CA

Borehole Diameter: 8.75 in.0-59 Ft.

Geologist: L. Dudas

Northing: 1,975,606.48 Feet (NAD 83; NAVD 88)

Date Started: April 8, 2005



Easting: 6,110,182.10 Feet (NAD 83; NAVD 88)

Date Completed: April 8, 2005

Ground Surface Elevation: 24.61 Feet amsl

Total Depth: 59.0 Feet bgs

Top of Casing Elevation:

Depth (ft.)	Water Level	Samples	Sample Number	Time	PID Readings PPM	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation (ft.)
55		☒ ☒	86-WOPT-346 86-WOPT-350	1240 1220		CL		non-plastic fines. 49 to 52 ft. CLAY WITH SAND: yellowish brown (10YR 5/4), moist, 85% fines with high plasticity, 15% fine to medium sand. 52 to 59 ft. SILT: dark grayish brown (2.5Y 4/2), moist, 90% fines with medium plasticity, 10% fine sand.	-30
60		☒	86-WOPT-347	1250		ML			-35
65								Boring terminated at 59 feet bgs. Groundwater encountered while drilling at 10 feet bgs. Boring was tremie backfilled with portland cement/5% bentonite mix to surface.	-40
70									-45
									-50

Notes: Boring Log Reviewed By: D. Goldman 7/15/05

bgs = below ground surface

AMSL = above mean sea level

NA = not applicable

PID = photo-ionization detector

# TETRA TECH EC, INC.

## LNF NF BNRINF W88-1 (Sheet 1 of 3)

Client: US NAVY	Drilling Company: Prosonic
Project: WATS OPT ADDENDUM - BUILDING 88	Drilling Method: Sonic
Project Number: 1990.086E	Sampling Method: continuous core
Location: FORMER NAS MOFFETT FIELD, CA	Borehole Diameter: 9 in. 0-57 Ft. 8 in. 57-97 Ft.
Geologist: L. Dudas	Northing: 1,975,922.00 Feet (NAD 83; NAVD 88)
Date Started: July 26, 2005	Easting: 6,110,435.60 Feet (NAD 83; NAVD 88)
Date Completed: July 28, 2005	Ground Surface Elevation: 20.40 Feet amsl
Total Depth: 97.0 Feet bgs	Top of Casing Elevation: 19.93 Feet amsl

Depth (ft.)	Water Level	Well/Boring Completion	Well/Boring Remarks	PID Readings PPM	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation (ft.)
0			12" Morrison flushmount with 3/4" bolts set in 2' round concrete pad.				0 to 57 ft. Not logged. Please see CPT-88-13 log for lithology. W88-1 was installed by overdrilling the CPT-88-13 boring.	20
5			Concrete					15
10								10
15								5
20			4" diameter 304 Stainless Steel Blank Casing					0

Notes: Boring Log Reviewed By: D. Goldman 8/29/05  
 bgs = below ground surface  
 AMSL = above mean sea level  
 NA = not applicable



# TETRA TECH EC, INC.

## LNF NF BNRINF W88-1 (Sheet 1 of 3)

Client: US NAVY	Drilling Company: Prosonic
Project: WATS OPT ADDENDUM - BUILDING 88	Drilling Method: Sonic
Project Number: 1990.086E	Sampling Method: continuous core
Location: FORMER NAS MOFFETT FIELD, CA	Borehole Diameter: 9 in.0-57 Ft. 8 in.57-97 Ft.
Geologist: L.Dudus	Northing: 1,975,922.00 Feet (NAD 83; NAVD 88)
Date Started: July 26, 2005	Easting: 6,110,435.60 Feet (NAD 83; NAVD 88)
Date Completed: July 28, 2005	Ground Surface Elevation: 20.40 Feet amsl
Total Depth: 97.0 Feet bgs	Top of Casing Elevation: 19.93 Feet amsl

Depth (ft.)	Water Level	Well/Boring Completion	Well/Boring Remarks	PID Readings PPM	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation (ft.)
30								-5
35			← Grout (95% cement 5% bentonite)					-10
40								-15
45								-20
								-25

Notes: Boring Log Reviewed By: D. Goldman 8/29/05  
bgs = below ground surface  
AMSL = above mean sea level  
NA = not applicable

# TETRA TECH EC, INC.

## LNF NF BNRINF W88-1 (Rheet 2 of 3)

Client: US NAVY	Drilling Company: Prosonic
Project: WATS OPT ADDENDUM - BUILDING 88	Drilling Method: Sonic
Project Number: 1990.086E	Sampling Method: continuous core
Location: FORMER NAS MOFFETT FIELD, CA	Borehole Diameter: 9 in. 0-57 Ft. 8 in. 57-97 Ft.
Geologist: L. Dudus	Northing: 1,975,922.00 Feet (NAD 83; NAVD 88)
Date Started: July 26, 2005	Easting: 6,110,435.60 Feet (NAD 83; NAVD 88)
Date Completed: July 28, 2005	Ground Surface Elevation: 20.40 Feet amsl
Total Depth: 97.0 Feet bgs	Top of Casing Elevation: 19.93 Feet amsl

Depth (ft.)	Water Level	Well/Boring Completion	Well/Boring Remarks	PID Readings PPM	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation (ft.)
55								-30
								-35
					ML		57 to 60 ft. SILT WITH SAND: light olive brown (2.5Y 5/3), moist, 85% fines with medium plasticity, 15% fine to medium subrounded sand.	
60					SM		60 to 62 ft. SILTY SAND: light olive brown (2.5Y 5/3), wet, 80% fine to medium subrounded sand, 20% non-plastic fines.	-40
					ML		62 to 65 ft. SANDY SILT: grayish brown (2.5Y 5/2), wet, 60% fines with low to medium plasticity, 40% fine to medium subrounded sand, trace gravel.	
65					CL		65 to 67 ft. CLAY: grayish brown (2.5Y 5/2), moist, 90% fines with high plasticity, 10% fine sand.	-45
					ML		67 to 68.5 ft. SANDY SILT: dark gray (2.5Y N/4), wet, 70% fines with low to medium plasticity, 30% fine sand.	
70					CL		68.5 to 71 ft. CLAY: grayish brown (2.5Y 5/2), moist, 90% fines with high plasticity, 10% fine sand.	-50
					SW-SM		71 to 74.5 ft. WELL GRADED SAND WITH SILT AND GRAVEL: grayish brown (2.5Y 5/2), wet, 70% fine to coarse subrounded to subangular sand, 20% fine subangular gravel, 10% non-plastic fines.	
					ML			

Notes: Boring Log Reviewed By: D. Goldman 8/29/05  
bgs = below ground surface  
AMSL = above mean sea level  
NA = not applicable

# TETRA TECH EC, INC.

## LNF NF BNRINF W88-1 (Sheet 3 of 3)

Client: US NAVY	Drilling Company: Prosonic
Project: WATS OPT ADDENDUM - BUILDING 88	Drilling Method: Sonic
Project Number: 1990.086E	Sampling Method: continuous core
Location: FORMER NAS MOFFETT FIELD, CA	Borehole Diameter: 9 in.0-57 Ft. 8 in.57-97 Ft.
Geologist: L.Dudus	Northing: 1,975,922.00 Feet (NAD 83; NAVD 88)
Date Started: July 26, 2005	Easting: 6,110,435.60 Feet (NAD 83; NAVD 88)
Date Completed: July 28, 2005	Ground Surface Elevation: 20.40 Feet amsl
Total Depth: 97.0 Feet bgs	Top of Casing Elevation: 19.93 Feet amsl

Depth (ft.)	Water Level	Well/Boring Completion	Well/Boring Remarks	PID Readings PPM	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation (ft.)
74.5					SM		74.5 to 75 ft. SILT: grayish brown (2.5Y 5/2), moist, 90% fines with medium plasticity, 10% fine sand.	-55
75					ML		75 to 75.5 ft. SILTY SAND: grayish brown (2.5Y 5/2), wet, 80% fine to coarse subrounded sand, 20% non-plastic fines.	
75.5							75.5 to 79.5 ft. SILT: grayish brown (2.5Y 5/2), moist, 90% fines with medium plasticity, 10% fine to coarse subrounded sand.	
79.5					CL-ML		79.5 to 85 ft. CLAY AND SILT: grayish brown (2.5Y 5/2), moist, 85% fines with medium to high plasticity, 10% fine sand.	-60
85					ML		85 to 87 ft. SILT WITH SAND: grayish brown (2.5Y 5/2), moist, 85% fines with medium plasticity, 15% fine to coarse subrounded sand.	-65
87					SM		87 to 90 ft. SILTY SAND: dark grayish brown (2.5Y 4/2), wet, 70% fine sand, 30% fines with low plasticity.	
90					ML		90 to 95 ft. SILT: dark grayish brown (2.5Y 4/2), moist, 90% fines with medium plasticity, 10% fine sand.	-70
95					CL		95 to 97 ft. CLAY: dark grayish brown (2.5Y 4/2), moist, 90% fines with high plasticity, 10% fine sand.	-75
							Total depth = 97 feet bgs.	

Notes: Boring Log Reviewed By: D. Goldman 8/29/05  
bgs = below ground surface  
AMSL = above mean sea level  
NA = not applicable

# TETRA TECH EC, INC.

## LNF NF BNRINF W88-1 (Sheet 1 of 3)

Client: US NAVY	Drilling Company: Prosonic
Project: WATS OPT ADDENDUM - BUILDING 88	Drilling Method: Sonic
Project Number: 1990.086E	Sampling Method: continuous core
Location: FORMER NAS MOFFETT FIELD, CA	Borehole Diameter: 9 in.0-62.5 Ft. 8 in.62.5-97 Ft.
Geologist: B. Bartelma	Northing: 1,977,212.20 Feet (NAD 83; NAVD 88)
Date Started: July 29, 2005	Easting: 6,110,253.80 Feet (NAD 83; NAVD 88)
Date Completed: August 1, 2005	Ground Surface Elevation: 18.80 Feet amsl
Total Depth: 97.0 Feet bgs	Top of Casing Elevation: 18.17 Feet amsl

Depth (ft.)	Water Level	Well/Boring Completion	Well/Boring Remarks	PID Readings PPM	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation (ft.)
5			12" Morrison flushmount with 3/4" bolts set in 2' round concrete pad. → Concrete				Not logged. Please see WO-CPT2 for lithology. W88-2 was installed by overdrilling the WO-CPT2 boring.	15.
10								10.
15								5.
20			→ 4" diameter 304 Stainless Steel Blank Casing					0.
								-5.

Notes: Boring Log Reviewed By: D. Goldman 8/29/05  
bgs = below ground surface  
AMSL = above mean sea level  
NA = not applicable

# TETRA TECH EC, INC.

## LNF NF BNRINF W88-1 (Sheet 1 of 3)

Client: US NAVY	Drilling Company: Prosonic
Project: WATS OPT ADDENDUM - BUILDING 88	Drilling Method: Sonic
Project Number: 1990.086E	Sampling Method: continuous core
Location: FORMER NAS MOFFETT FIELD, CA	Borehole Diameter: 9 in.0-62.5 Ft. 8 in.62.5-97 Ft.
Geologist: B. Bartelma	Northing: 1,977,212.20 Feet (NAD 83; NAVD 88)
Date Started: July 29, 2005	Easting: 6,110,253.80 Feet (NAD 83; NAVD 88)
Date Completed: August 1, 2005	Ground Surface Elevation: 18.80 Feet amsl
Total Depth: 97.0 Feet bgs	Top of Casing Elevation: 18.17 Feet amsl

Depth (ft.)	Water Level	Well/Boring Completion	Well/Boring Remarks	PID Readings PPM	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation (ft.)
30			Centralizer					-10.
35			Grout (95% cement 5% bentonite)					-15.
40								-20.
45								-25.
								-30.

Notes: Boring Log Reviewed By: D. Goldman 8/29/05  
bgs = below ground surface  
AMSL = above mean sea level  
NA = not applicable

# TETRA TECH EC, INC.

## LNF NF BNRINF W88-1 (Sheet 2 of 3)

Client: US NAVY	Drilling Company: Prosonic
Project: WATS OPT ADDENDUM - BUILDING 88	Drilling Method: Sonic
Project Number: 1990.086E	Sampling Method: continuous core
Location: FORMER NAS MOFFETT FIELD, CA	Borehole Diameter: 9 in.0-62.5 Ft. 8 in.62.5-97 Ft.
Geologist: B. Bartelma	Northing: 1,977,212.20 Feet (NAD 83; NAVD 88)
Date Started: July 29, 2005	Easting: 6,110,253.80 Feet (NAD 83; NAVD 88)
Date Completed: August 1, 2005	Ground Surface Elevation: 18.80 Feet amsl
Total Depth: 97.0 Feet bgs	Top of Casing Elevation: 18.17 Feet amsl

Depth (ft.)	Water Level	Well/Boring Completion	Well/Boring Remarks	PID Readings PPM	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation (ft.)
55								-35
60								-40
65					CL-ML		62.5 to 63.5 ft. CLAY AND SILT: olive brown (2.5Y 4/3), moist, 90% fines with moderate to high plasticity, 10% fine sand.	-45
					ML		63.5 to 64.5 ft. SANDY SILT: olive brown (2.5Y 4/3), moist, 60% fines with low plasticity, 40% fine sand.	
					CL		64.5 to 66 ft. CLAY: olive brown (2.5Y 4/3), moist, 90% fines with high plasticity, 10% fine sand.	
					ML		66 to 67 ft. SANDY SILT: dark grayish brown (2.5Y 4/2), moist, 60% fines with low plasticity, 40% fine sand.	
					CL-ML		67 to 69 ft. CLAY AND SILT: dark gray (5Y 4N), moist, 90% fines with medium to high plasticity, 10% fine sand.	-50
70					ML		69 to 70 ft. SANDY SILT: dark grayish brown (2.5Y 4/2), moist, 60% fines with low plasticity, 40% fine sand.	
					CL		70 to 77 ft. CLAY: olive gray (5Y 4/2), moist, 90% fines with high plasticity, 10% fine sand.	-55

← Bentonite Seal (Enviroplug medium)

Notes: Boring Log Reviewed By: D. Goldman 8/29/05  
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AMSL = above mean sea level  
NA = not applicable

# TETRA TECH EC, INC.

## LNF NF BNRINF W88-1 (Sheet 3 of 3)

Client: US NAVY	Drilling Company: Prosonic
Project: WATS OPT ADDENDUM - BUILDING 88	Drilling Method: Sonic
Project Number: 1990.086E	Sampling Method: continuous core
Location: FORMER NAS MOFFETT FIELD, CA	Borehole Diameter: 9 in.0-62.5 Ft. 8 in.62.5-97 Ft.
Geologist: B. Bartelma	Northing: 1,977,212.20 Feet (NAD 83; NAVD 88)
Date Started: July 29, 2005	Easting: 6,110,253.80 Feet (NAD 83; NAVD 88)
Date Completed: August 1, 2005	Ground Surface Elevation: 18.80 Feet amsl
Total Depth: 97.0 Feet bgs	Top of Casing Elevation: 18.17 Feet amsl

Depth (ft.)	Water Level	Well/Boring Completion	Well/Boring Remarks	PID Readings PPM	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation (ft.)
80			Filter Pack (#2/16 Sand)		CL			-60
			Centralizer		SP-SM		77 to 79.5 ft. POORLY GRADED SAND WITH SILT: olive (5Y 4/3), wet, 90% fine to medium sand, 10% non-plastic fines.	
					ML		79.5 to 80 ft. CLAYEY SILT WITH SAND: olive gray (5Y 4/2), moist, 80% fines with medium to high plasticity, 20% fine sand.	
			4" diameter .010" 304 Stainless Steel Wire-Wrapped Screen		ML		80 to 80.5 ft. SILTY SAND: olive (5Y 4/3), wet, 80% fine to medium sand, 20% non-plastic fines.	
					CL		80.5 to 82 ft. CLAYEY SILT WITH SAND: olive gray (5Y 4/2), moist, 80% fines with medium to high plasticity, 20% fine sand.	-65
			Centralizer		ML		82 to 84.5 ft. CLAY: olive gray (5Y 4/2), moist, 90% fines with high plasticity, 10% fine sand.	
					SM		84.5 to 85.5 ft. SILT WITH SAND: olive gray (5Y 4/2), moist, 80% fines with medium plasticity, 20% fine sand.	
					ML		85.5 to 86 ft. SILTY SAND: olive gray (5Y 4/2), wet, 80% fine to coarse sand, 20% non-plastic fines, trace fine gravel.	
					ML		86 to 87 ft. SANDY SILT: olive gray (5Y 4/2), wet, 60% fines with low plasticity, 40% fine sand.	-70
					ML		87 to 90 ft. CLAYEY SILT WITH SAND: olive gray (5Y 4/2), moist, 80% fines with medium to high plasticity, 20% fine sand.	
					ML		90 to 93 ft. SANDY SILT: olive gray (5Y 4/2), wet, 60% fines with low plasticity, 40% fine sand.	
			Bentonite Backfill (Enviroplug medium)		CL-ML		93 to 97 ft. CLAY AND SILT: olive gray (5Y 4/2), moist, 85% fines with high plasticity, 15% fine sand.	-75
95							TD = 97 feet bgs.	-80

Notes: Boring Log Reviewed By: D. Goldman 8/29/05  
bgs = below ground surface  
AMSL = above mean sea level  
NA = not applicable

# TETRA TECH EC, INC.

## LOG OF BORING W88-3 (Sheet 1 of 4)

Client: US NAVY	Drilling Company: Prosonic
Project: WATS OPT ADDENDUM - BUILDING 88	Drilling Method: Sonic
Project Number: 1990.086E	Sampling Method: continuous core
Location: FORMER NAS MOFFETT FIELD, CA	Borehole Diameter: 9 in. 0-63 Ft. 8 in. 63-97 Ft.
Geologist: B. Bartelma	Northing: 1,976,585.50 Feet (NAD 83; NAVD 88)
Date Started: August 2, 2005	Easting: 6,109,886.00 Feet (NAD 83; NAVD 88)
Date Completed: August 3, 2005	Ground Surface Elevation: 20.50 Feet amsl
Total Depth: 97.0 Feet bgs	Top of Casing Elevation: 20.10 Feet amsl

Depth (ft.)	Water Level	Well/Boring Completion	Well/Boring Remarks	PID Readings PPM	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation (ft.)
			12" Morrison flushmount with 3/4" bolts set in 2' round concrete pad ← Concrete				0 to 2 ft. Artificial Fill.	20
5					ML		2 to 5 ft. SANDY SILT: olive gray (5Y 4/2), moist, 70% fines with low plasticity, 30% fine to coarse sand.	
					ML		5 to 7 ft. SILT WITH SAND: olive gray (5Y 4/2), moist, 80% fines with moderate plasticity, 20% fine to coarse sand.	15
					ML		7 to 9 ft. SANDY SILT: olive gray (5Y 4/2), moist, 60% fines with low plasticity, 40% fine to medium sand.	
10					ML		9 to 11 ft. SANDY SILT: olive gray (5Y 4/2), moist, 70% fines with medium plasticity, 30% fine sand.	10
					SM		11 to 12 ft. SILTY SAND: olive gray (5Y 4/2), moist, 60% fine sand, 40% non-plastic fines.	
					ML		12 to 13 ft. SANDY SILT: olive gray (5Y 4/2), wet, 60% fines with low plasticity, 40% fine sand.	
15					ML-CL		13 to 15 ft. SILT AND CLAY: olive gray (5Y 4/2), moist, 80% fines with medium to high plasticity, 20% fine sand.	
					SW-SM		15 to 16 ft. WELL GRADED SAND WITH SILT AND GRAVEL: olive gray (5Y 4/2), wet, 70% fine to coarse sand, 20% fine gravel, 10% non-plastic fines.	5
					SP-SM		16 to 18 ft. POORLY GRADED SAND WITH SILT: dark olive gray (5Y 3/2), wet, 90% fine to coarse sand, 10% non-plastic fines, trace gravel.	
					ML		18 to 18.5 ft. SANDY SILT: olive gray (5Y 4/2), moist, 60% fines with low to medium plasticity, 40% fine to coarse sand, trace fine gravel.	
20					SW-SM		18.5 to 21 ft. WELL GRADED SAND WITH SILT AND GRAVEL: olive gray (5Y 4/2), wet, 70% fine to coarse sand, 20% fine gravel, 10% non-plastic fines.	0
					ML		21 to 32 ft. SANDY SILT: olive gray (5Y 4/2), wet, 60% fines with low plasticity, 40% fine to coarse sand.	

Notes: Boring Log Reviewed By: D. Goldman 8/29/05  
bgs = below ground surface  
AMSL = above mean sea level  
NA = not applicable



# TETRA TECH EC, INC.

## LOG OF BORING W88-3 (Sheet 2 of 4)

Client: US NAVY	Drilling Company: Prosonic
Project: WATS OPT ADDENDUM - BUILDING 88	Drilling Method: Sonic
Project Number: 1990.086E	Sampling Method: continuous core
Location: FORMER NAS MOFFETT FIELD, CA	Borehole Diameter: 9 in. 0-63 Ft. 8 in. 63-97 Ft.
Geologist: B. Bartelma	Northing: 1,976,585.50 Feet (NAD 83; NAVD 88)
Date Started: August 2, 2005	Easting: 6,109,886.00 Feet (NAD 83; NAVD 88)
Date Completed: August 3, 2005	Ground Surface Elevation: 20.50 Feet amsl
Total Depth: 97.0 Feet bgs	Top of Casing Elevation: 20.10 Feet amsl

Depth (ft.)	Water Level	Well/Boring Completion	Well/Boring Remarks	PID Readings PPM	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation (ft.)
30			Centralizer		ML		color change to light yellowish brown (2.5Y 6/3), moist, 70% fines with medium plasticity, 30% fine to coarse sand.	-5
35					CL		color change to olive brown (2.5Y 4/4)	-10
37					CL		32 to 37 ft. CLAY: olive gray (2.5Y 5/2), moist, 90% fines with high plasticity, 10% fine sand, trace calcareous nodules up to 2" in size.	-15
40			Grout (95% cement 5% bentonite)		ML		37 to 39 ft. SILT WITH SAND: olive (5Y 4/3), moist, 80% fines with medium plasticity, 20% fine sand	-20
42					ML		39 to 40.5 ft. SANDY SILT: olive gray (5Y 4/2), moist, 70% fines with medium plasticity, 30% fine to medium sand.	-22
44					SM		40.5 to 43 ft. SILTY SAND: olive gray (5Y 4/2), wet, 60% fine to medium sand, 40% non-plastic fines.	-24
46					ML		43 to 45 ft. SANDY SILT: olive gray (5Y 4/2), wet, 60% fines with low to medium plasticity, 40% fine to medium sand.	-26
48					CL		45 to 47 ft. CLAY: olive gray (2.5Y 5/2), moist, 90% fines with high plasticity, 10% fine sand.	-28
50					ML		47 to 48.5 ft. SANDY SILT: olive gray (5Y 4/2), moist, 70% fines with low plasticity, 30% fine to coarse sand.	-30
52					ML		48.5 to 50.5 ft. SILT WITH SAND: olive (5Y 4/3), moist, 80% fines with medium plasticity, 20% fine to medium sand.	-32

Notes: Boring Log Reviewed By: D. Goldman 8/29/05  
bgs = below ground surface  
AMSL = above mean sea level  
NA = not applicable

# TETRA TECH EC, INC.

## LOG OF BORING W88-3 (Sheet 3 of 4)

Client: US NAVY	Drilling Company: Prosonic
Project: WATS OPT ADDENDUM - BUILDING 88	Drilling Method: Sonic
Project Number: 1990.086E	Sampling Method: continuous core
Location: FORMER NAS MOFFETT FIELD, CA	Borehole Diameter: 9 in. 0-63 Ft. 8 in. 63-97 Ft.
Geologist: B. Bartelma	Northing: 1,976,585.50 Feet (NAD 83; NAVD 88)
Date Started: August 2, 2005	Easting: 6,109,886.00 Feet (NAD 83; NAVD 88)
Date Completed: August 3, 2005	Ground Surface Elevation: 20.50 Feet amsl
Total Depth: 97.0 Feet bgs	Top of Casing Elevation: 20.10 Feet amsl

Depth (ft.)	Water Level	Well/Boring Completion	Well/Boring Remarks	PID Readings PPM	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation (ft.)
55					ML-CL		50.5 to 55.5 ft. SILT AND CLAY: olive gray (5Y 4/2), moist, 80% fines with medium to high plasticity, 20% fine sand.	-30
					ML		55.5 to 57 ft. SANDY SILT: dark olive gray (5Y 3/2), wet, 60% fines with no to low plasticity, 40% fine to medium sand. At 56 feet bgs, moist, with increasing fine sand.	-35
					CL		57 to 58.5 ft. CLAY: olive brown (2.5Y 4/3), moist, 90% fines with high plasticity, 10% fine sand.	
60					SM		58.5 to 60 ft. SILTY SAND: dark olive brown (2.5Y 3/3), wet, 75% fine to coarse sand, 20% non-plastic fines, 5% fine gravel.	-40
					CL		60 to 63.5 ft. CLAY: olive brown (2.5Y 4/3), moist, 90% fines with high plasticity, 10% fine sand.	
65					SM		63.5 to 65.5 ft. SILTY SAND: dark grayish brown (2.5Y 4/2), wet, 80% fine to medium sand, 20% non-plastic fines.	-45
					ML		65.5 to 69 ft. SILT WITH SAND: olive (5Y 4/3), moist, 80% fines with low plasticity, 20% fine to medium sand.	
70					CL-ML		69 to 73 ft. CLAY AND SILT: gley, moist, 90% fines with medium to high plasticity, 10% fine sand.	-50
					ML-CL		73 to 78 ft. SILT AND CLAY: olive gray (5Y 4/2), moist, 80% fines with medium plasticity, 20% fine sand.	

Notes: Boring Log Reviewed By: D. Goldman 8/29/05  
bgs = below ground surface  
AMSL = above mean sea level  
NA = not applicable

# TETRA TECH EC, INC.

## LOG OF BORING W88-3 (Sheet 4 of 4)

Client: US NAVY	Drilling Company: Prosonic
Project: WATS OPT ADDENDUM - BUILDING 88	Drilling Method: Sonic
Project Number: 1990.086E	Sampling Method: continuous core
Location: FORMER NAS MOFFETT FIELD, CA	Borehole Diameter: 9 in.0-63 Ft. 8 in.63-97 Ft.
Geologist: B. Bartelma	Northing: 1,976,585.50 Feet (NAD 83; NAVD 88)
Date Started: August 2, 2005	Easting: 6,109,886.00 Feet (NAD 83; NAVD 88)
Date Completed: August 3, 2005	Ground Surface Elevation: 20.50 Feet amsl
Total Depth: 97.0 Feet bgs	Top of Casing Elevation: 20.10 Feet amsl

Depth (ft.)	Water Level	Well/Boring Completion	Well/Boring Remarks	PID Readings PPM	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation (ft.)
					ML-CL			-55
			Filter Pack (#2/16 Sand)		ML		78 to 79.5 ft. SANDY SILT: clay (4/5GY), moist, 60% fines with medium plasticity, 40% fine to medium sand.	
80			Centralizer		SM		79.5 to 85.5 ft. SILTY SAND: clay (4/10Y), wet, 80% fine to medium sand, 20% non-plastic fines.	-60
			4" diameter .010" 304 Stainless Steel Wire-Wrapped Screen		ML		85.5 to 86 ft. SILT WITH SAND: clay (4/10Y), moist, 80% fines with low plasticity, 20% fine sand.	-65
85			Centralizer		SM		86 to 87 ft. SILTY SAND: clay (4/10Y), wet, 80% fine to coarse sand, 20% non-plastic fines.	
			Centralizer		ML		87 to 92.5 ft. SANDY SILT: olive gray (5Y 4/2), moist to wet, 70% fines with low to medium plasticity, 30% fine to medium sand.	-70
			Bentonite Backfill (Enviroplug medium)		SM		92.5 to 93.5 ft. SILTY SAND: olive gray (5Y 4/2), wet, 60% fine to coarse sand, 40% non-plastic fines.	
95					ML		93.5 to 96 ft. SANDY SILT: dark grayish brown (2.5Y 4/2), moist to wet, 70% fines with low plasticity, 30% fine to medium sand.	-75
					ML		96 to 97 ft. SILT: clay (4/10Y), moist, 80% fines with low plasticity, 20% fine sand.	
							TD = 97 feet bgs.	

Notes: Boring Log Reviewed By: D. Goldman 8/29/05  
bgs = below ground surface  
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NA = not applicable

## WELL DEVELOPMENT LOG / WELL SAMPLING LOG

Project Name: BLDG 88-B Wells  
Project Number: 1990-086E  
Date: 8-15-05  
Site Engineer: \_\_\_\_\_

Well Number: MW88-1  
Equipment: SMEAL  
Contractor: ProSonic

	Before	Reference Point	After
Depth to Water (ft)	10.26	TOC	60.4
Depth to Sediment (ft)	81.90	loc	82.3
Thickness of Sediment (ft)	.4		

Depth of Well (ft)	82.3
Diameter of Casing (ft)	.33
Water Column Height (ft)	72.04

Water Column Height (ft) 12.54  
 Casing Volume (gals) =  $\pi(\text{Diam. of Casing (ft)}^2) (\text{Water Column Height (ft)}) (7.48 \text{ gals/ft}^3) =$  1372.8  
 Casing Volumes Purged 2187.8  
 Total Volume Purged (gals) 3000 gal  
6.56

[illegible]

Notes Sampling Procedures:

## WELL DEVELOPMENT LOG / WELL SAMPLING LOG

Project Name: BLOG. 88 "B" WELLS  
Project Number: 1990-086E  
Date: 8-16-05  
Site Engineer: \_\_\_\_\_

Well Number: MW 88-2  
Equipment: Smeal  
Contractor: Prosonic

	Before	Reference Point	After
Depth to Water (ft)	12.25	TOC	32.0
Depth to Sediment (ft)	86.80	TOC	86.8
Thickness of Sediment (ft)	0		0

Depth of Well (ft)	<u>86.8</u>
Diameter of Casing (ft)	<u>.33</u>
Water Column Height (ft)	<u>74.55</u>

$$\text{Casing Volume (gals)} = \pi (\text{Diam. of Casing (ft)} / 2)^2 (\text{Water Column Height (ft)}) (7.48 \text{ gals/ft}^3) = 47.7$$

Total Volume Purged (gals) 450

[illegible]

Notes Sampling Procedures:

## WELL DEVELOPMENT LOG / WELL SAMPLING LOG

Project Name: BLOG 88 "B" WELLS

Well Number: MW88-3

Project Number: 1990-086E

Equipment: SMEAL

Date: 8-15-05

Contractor: PROSONIC

Site Engineer: \_\_\_\_\_

Depth to Water (ft) Before  
10.26

Reference Point

*After*

Depth to Sediment (ft) 89.3

TDC

उद्. 3

Thickness of Sediment (ft) .2

700.

89.5

Depth of Well (ft) 89.5

Diameter of Casing (ft) 33Water Column Height (ft) 79.24

Casing Volume (gals) =  $\pi(\text{Diam. of Casing (ft)}/2)^2 (\text{Water Column Height (ft)}) (7.48 \text{ gals/ft}^3) = 50.7$

Casing Volumes Purged 4.23

Total Volume Purged (gals) 250

[illegible]

Notes Sampling Procedures:

Base Realignment and Closure  
Program Management Office West  
1455 Frazee Road, Suite 900  
San Diego, California 92108-4310

CONTRACT NO. N68711-98-D-5713  
CTO NO. 0086

**DRAFT**  
**FORMER BUILDING 88 INVESTIGATION REPORT**  
**July 21, 2006**

**FORMER NAVAL AIR STATION MOFFETT FIELD**  
**MOFFETT FIELD, CALIFORNIA**

**DCN: FWSD-RAC-06-0206**



**TETRA TECH EC, INC.**

**1230 Columbia Street, Suite 750**  
**San Diego, CA 92101-8536**

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Gordon Jamieson  
Project Manager

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Larry Dudus, PG 5126  
Project Geologist

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Dennis Goldman, Ph.D., PG 4509  
Groundwater Technical Lead





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## ABBREVIATIONS AND ACRONYMS

µg/kg	micrograms per kilogram
µg/L	micrograms per liter
µmhos/cm	micromhos per centimeter
1,1-DCA	1,1-dichloroethane
ASTM	American Society for Testing and Materials
bgs	below ground surface
C	Celsius
CA	California
Ca	calcium
CaCO <sub>3</sub>	calcium carbonate
cc	cubic centimeter
cis-1,2-DCE	cis-1,2-dichloroethene
Cl	chloride
cm	centimeter
CO <sub>3</sub>	carbonate
COC	constituent of concern
CPT	cone penetrometer testing
cu yd	cubic yard
DHC	<i>Dehalococcoides</i> spp.
DNAPL	dense non-aqueous phase liquid
DoD	Department of Defense
DPT	direct push technology
EOS	Edible Oil Substate
EPA	U.S. Environmental Protection Agency
FD	field duplicate
Fe	iron
FWENC	Foster Wheeler Environmental Corporation
g	grams
GW	groundwater
HCO <sub>3</sub>	bicarbonate

## ABBREVIATIONS AND ACRONYMS

(Continued)

HDPE	high-density polyethylene
HLA	Harding Lawson Associates
HRC®	Hydrogen Release Compound
J	estimated value
ISOTEC	In-Situ Oxidative Technologies, Inc.
K	potassium
L/kg	liters per kilogram
L/min	liter per minute
MCL	Maximum Contaminant Level
MDL	method detection limit
MEW	Middlefield-Ellis-Whisman
Mg	magnesium
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
mL	milliliter
mm	millimeters
mM	millimoles
MS	matrix spike
MSD	matrix spike duplicate
mV	millivolts
Na	sodium
N/A	not applicable
NA	not analyzed
NAS	Naval Air Station
NASA	National Aeronautics and Space Administration
ND	compound analyzed for, but not detected at MDL
nm	nanometers
NO <sub>3</sub>	nitrite
NS	physiological status markers not detected
NTU	nephelometric turbidity unit

## ABBREVIATIONS AND ACRONYMS

(Continued)

PCE	tetrachloroethene
PID	photoionization detector
PLFA	phospholipids fatty acid
ppbv	parts per billion by volume
ppm	parts per million
PRC	PRC Environmental Management, Inc.
PRG	Preliminary Remediation Goal
QA	quality assurance
QC	quality control
R	quality control indicates that data is not usable
RAO	Remedial Action Objective
RPD	relative percent difference
SO <sub>4</sub>	sulfate
Ssp	species
TCE	trichloroethene
TCE R-Dase	trichloroethene reductase
TIC	tentatively identified compound
TOC	total organic carbon
TtEMI	Tetra Tech EM, Inc.
TtFW	Tetra Tech FW, Inc.
U	not detected at or above the laboratory reporting limit (value indicates reporting limit)
USCS	Unified Soils Classification System
VC	vinyl chloride
VC R-Dase	vinyl chloride reductase
VOC	volatile organic compound
WATS	West-Side Aquifers Treatment System

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## EXECUTIVE SUMMARY

The objective of this study was to determine if historic dry cleaning activities from former Building 88 has resulted in a residual source of tetrachloroethene (PCE) contamination to groundwater, and if present, to characterize the nature and extent of such contamination. Building 88 was located at the former Naval Air Station Moffett Field (Moffett), Moffett Field, California, and served as a dry cleaning and laundry facility from approximately 1945 until its closure in 1987. The Navy conducted a removal action in 1994, which included the demolition of the building and the removal of associated tanks and sumps. The Navy began groundwater source control in 1994.

The investigation described in this document included a soil gas survey, soil core sampling, cone penetrometer testing, geologic logging, direct push technology groundwater and soil sampling, groundwater monitoring well installation and sampling, and collection of soil and groundwater samples for treatability studies. A continuing source of PCE contamination to groundwater was identified in the footprint of Building 88 and in a traffic island along a sewer alignment downstream from the building location.

### **PCE Contamination in the Building 88 Footprint Area**

The maximum PCE concentration in soil samples collected from the Building 88 area was in a sample collected beneath the building footprint (6,700 micrograms per kilogram [ $\mu\text{g/kg}$ ]), located in the area of Sump 66. PCE concentrations in soil greater than the U.S. Environmental Protection Agency Preliminary Remediation Goal for residential land use of 480  $\mu\text{g/kg}$  extend to a maximum depth of approximately 35 feet below ground surface (bgs). The calculated volume of soil with PCE concentrations greater than 480  $\mu\text{g/kg}$  within the footprint of Building 88 is 775 cubic yards (cu yd). The calculated mass of PCE in the soil with concentrations greater than 480  $\mu\text{g/kg}$  in the Building 88 area is 2.5 pounds. Shallow PCE contamination in soil in the Building 88 area does not extend laterally much farther than the building footprint. It appears that PCE-contaminated soil is contributing to groundwater PCE concentrations in the A aquifer at the Building 88 area.

PCE concentrations in groundwater beneath the Building 88 area range from less than the laboratory reporting limit of 0.5 micrograms per liter ( $\mu\text{g/L}$ ) to an estimated high of 2,100  $\mu\text{g/L}$ . PCE concentrations increase with depth to the north of the Building 88 footprint at depths greater than 30 feet bgs. PCE-contaminated groundwater moved vertically down (advectively with groundwater and/or as a dense non-aqueous phase liquid [DNAPL]) to about 20 to 30 feet bgs underlying the Building 88 footprint. In the 20- to 30-foot bgs depth interval, the PCE-contaminated groundwater moved advectively to the north and/or possibly down-dip as DNAPL. Contamination then found a vertical pathway and moved to the greatest depth investigated (60 feet bgs).

## **PCE Contamination in the Traffic Island Area**

Wastewater containing PCE from the Building 88 Sump 66 was discharged to a sewer line. There was a leak in the sewer line downstream from Building 88 in the traffic island area, resulting in PCE contamination of soils and groundwater. PCE concentrations in soil in the traffic island were greater than 480 µg/kg to a depth of about 65 to 70 feet bgs. The calculated volume of PCE-contaminated soil at concentrations greater than 480 µg/kg in the traffic island area is 12,400 cu yd. The calculated mass of PCE in the soil with concentrations greater than 480 µg/kg in the traffic island area is 32 pounds. It appears that PCE-contaminated soil is contributing to groundwater PCE concentrations in the A aquifer at the traffic island area.

Concentrations of PCE in groundwater beneath the traffic island area range from 2,000 to 15,000 µg/L within the A aquifer. It appears that PCE contamination moved vertically down to the depth of about 70 feet bgs in the traffic island. Based on the PCE concentrations measured in this investigation, the vertical movement of contamination in the traffic island was likely a combination of DNAPL and dissolved phase. Based on groundwater concentrations of PCE, DNAPL appears to be present at a depth of 17 to 19 feet bgs.

## **PCE Groundwater Contamination**

There are two PCE plume lobes within the upper portion of the A aquifer. The eastern lobe is a narrow linear feature (about 1,000 feet long and generally less than 50 feet wide) along Cummins Avenue. The eastern lobe, found in the shallowest portions of the upper A aquifer, appears to be controlled by the utility trench backfill along Cummins Avenue. The highest groundwater concentration of PCE within the eastern lobe (excluding the traffic island source area) was reported at an estimated concentration of 830 µg/L. The western PCE plume lobe within the upper portion of the A aquifer is approximately 2,000 feet long and from 150 to 250 feet wide. The plume has an elongated shape in a north-south direction, apparently controlled by the channelization characteristics of coarse-grained soil. The highest groundwater concentration of PCE within the western lobe (excluding the Building 88 source area) was reported at an estimated concentration of 150 µg/L. The amount of PCE in groundwater in the upper A aquifer is calculated to be 48 pounds.

The PCE groundwater plume in the lower A aquifer is approximately 1,600 feet long and ranges from 250 to 500 feet wide. The plume is located generally west of Hangar 1. The highest groundwater concentration of PCE within the lower portion of the A aquifer (not accounting for the PCE within the Building 88 or traffic island source areas) was at an estimated concentration of 530 µg/L. The amount of PCE in groundwater in the lower portion of the A aquifer is calculated to be 70 pounds.



There is de minimus PCE impacting the B2 aquifer. One B2 aquifer groundwater monitoring well had PCE concentrations above laboratory reporting limits in samples collected in December 2005. The 6 ug/L of PCE in the December 2005 groundwater sample collected from that well appear to be residual contamination caused by drag-down during well construction.

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## 1.0 INTRODUCTION

The Navy is conducting environmental restoration activities at the former Naval Air Station Moffett Field (Moffett), Moffett Field, California (Figures 1-1 and 1-2), as part of the Installation Restoration Program. This Report addresses the evaluation of source areas and remedial alternatives for a tetrachloroethene (PCE) groundwater plume apparently originating from the former Building 88 dry cleaning facility at Moffett. Implementation of the *Final West-Side Aquifers Treatment System [WATS] Optimization Work Plan Addendum 1* (Tetra Tech FW, Inc. [TiFW], 2005a) was conducted between April and May 2005.

This Report was prepared on behalf of the Navy's Base Realignment and Closure Program Management Office West. This work was conducted under Contract Task Order No. 0086, issued under Remedial Action Contract No. N68711-98-D-5713.

### 1.1 SITE DESCRIPTION

Building 88 was located south of Wescoat Road between Severyns Avenue and Dugan Avenue. The site is currently a vacant lot occupying approximately  $\frac{1}{2}$  acre (Figure 1-3 and Appendix A, Photograph A-1). Prior to its development in 1930, the surrounding area was used for agriculture. Building 88 served as a dry cleaning and laundry facility from approximately 1945 until its closure in 1987. Therefore, Building 88 is the only possible source of PCE (dry cleaning solvent) in the area.

The Building 88 footprint occupied approximately 13,500 square feet. Building 88 was constructed with a concrete floor, containing numerous floor drains, floor trenches (assumed to be concrete lined, but construction specifics could not be verified), and subsurface steel piping for wastewater collection (Figure 1-4). Floor drains and piping in the main portion of the building drained to Sump 91, a 700-gallon, single-chamber concrete sump used to collect and store wastewater. Floor drains and piping near the equipment room (northeast portion of the building) received and drained wastewater from the dry cleaning machine area to Sump 66, a 100-gallon concrete sump that was reportedly connected to the sanitary sewer. The equipment room had wastewater collection floor trenches ranging in depth from 1 to 2.5 feet, which drained to the south. Wastewater from dry cleaning operations may have drained to Tank 68 via the wastewater collection floor trenches. Tank 68 was located adjacent to the portion of the facility where the wastewater collection trench was deepest (approximately 2.5 feet below the concrete floor surface). Tank 68, a 2,000-gallon concrete tank, was reported to have stored or collected waste dry cleaning fluids. A 5-foot-deep pit and a steam pit may have been located in the northeast and southeast corners of the equipment room, respectively. Confirmation of these pits could not be validated, and record drawings could not be located.

Sump 66 was excavated and removed in 1990. Tank 68 was closed in place in 1990. Remedial activities completed in 1994 included the following:

- Tank 68 was excavated, emptied, and removed.
- Building 88, including the collection trenches, floor drains, and piping, was demolished and removed.
- Sump 91 was excavated and removed.
- Groundwater source control measures were installed,

## **1.2 PREVIOUS INVESTIGATIONS**

The following sections describe previous site investigations conducted at or near the former Building 88.

### **1.2.1 Soil Gas Surveys**

Soil gas surveys were conducted in the vicinity of Building 88 in 1988 and in 1990 (Harding Lawson Associates [HLA], 1995). Thirteen soil gas samples were collected and analyzed for PCE within 50 feet of the building. Sample locations and PCE concentrations are shown on Figure 1-5. The maximum PCE gas concentration of 312,000 parts per billion by volume (ppbv) was detected in a sample that was collected adjacent to the south side of the equipment room, near Tank 68. Soil gas samples were not collected within the Building 88 footprint.

Additional soil gas samples were collected in 1991 (HLA, 1995). The majority of the soil gas samples collected in 1991 were located approximately 800 to 1,200 feet north and east of Building 88. PCE was detected in soil gas at a maximum concentration of 248 ppbv in a sample collected from a location on Cummins Avenue, near a sanitary sewer line adjacent to Hangar 1. The sanitary sewer line reportedly served as a conduit for PCE-containing wastewater from Sump 66 (HLA, 1995).

### **1.2.2 Sump 66 Investigations**

Sump 66, a 100-gallon concrete sump approximately 3 feet deep (actual sump dimensions do not appear to have been reported), received wastewater from floor drains and sinks near the dry cleaning equipment area of Building 88. Sump 66 reportedly drained to the sanitary sewer located on Wescoat Road. Sump 66 was inspected in November 1985 (PRC Environmental Management, Inc. [PRC], 1991). A sample of the liquid from the sump contained the following volatile organic compounds (VOCs): 63 milligrams per liter (mg/L) of dibromochloromethane, 55 mg/L of PCE, and trace amounts of ethylbenzene and xylene (less than 0.2 mg/L each). The sump liquids were resampled in March 1987 (PRC, 1991), with detected concentrations of PCE and trichloroethene (TCE) at 18 mg/L and 0.6 mg/L, respectively.

Monitoring well ERM-4 and soil boring ERM-B13 located near Sump 66 (see Figure 1-5) were installed and sampled in 1987 (PRC, 1991). Soil samples were collected at depths of 7, 12, 17, and 19.5 feet below ground surface (bgs) at both locations. PCE was detected at a maximum concentration of 2,100 micrograms per kilogram ( $\mu\text{g}/\text{kg}$ ) at 19.5 feet bgs in a soil sample from the boring for monitoring well ERM-4, and 6,900  $\mu\text{g}/\text{kg}$  at 12 feet bgs in a soil sample from boring ERM-B13.

Sump 66 was inspected in 1990 and found to be cracked from the top to the bottom. The sump was excavated and removed. Groundwater was not encountered in the excavation. Three soil samples were collected from the excavation: one from the west wall, one from the north wall, and one from the excavation bottom. PCE was detected in the west wall soil sample at a concentration of 20  $\mu\text{g}/\text{kg}$ . PCE concentrations in the other two excavation soil samples were below laboratory reporting limits (PRC, 1991).

### **1.2.3 Tank 68 Investigations**

Tank 68, a 2,000-gallon concrete tank, was used to store PCE cleaning solvent. The tank was emptied of liquids, filled with sand, and closed in place in 1987 (PRC, 1995). Angled boring SB68-1 and angled monitoring well W68-1 were drilled to the west and east of Tank 68, respectively (see Figure 1-5), in September 1990. Soil samples were collected at depths of 2.5, 7.5, 12.5, 17.5, and 25 feet bgs at both locations. PCE was detected at a maximum concentration of 140  $\mu\text{g}/\text{kg}$  at 12.5 feet bgs in a soil sample from the boring for monitoring well W68-1 and 110  $\mu\text{g}/\text{kg}$  at 17.5 feet bgs in a soil sample from boring SB68-1.

Tank 68 was excavated and removed in 1994 (PRC, 1995). The tank, which appeared to be intact, was broken up and removed using a backhoe. The maximum excavation depth was approximately 9 feet bgs. Groundwater was not initially observed, but eventually accumulated in the bottom of the excavation. Three soil samples and one groundwater sample were collected from the excavation bottom. Reported PCE soil concentrations ranged from 8  $\mu\text{g}/\text{kg}$  to 130  $\mu\text{g}/\text{kg}$ . PCE was detected in the groundwater sample at a concentration of 200 micrograms per liter ( $\mu\text{g}/\text{L}$ ) (PRC, 1995).

### **1.2.4 Sump 91**

Sump 91, a 700-gallon concrete sump, received wastewater from the Building 88 floor drains and sinks. Sump 91 contained liquid that was sampled and then pumped out in 1991 (PRC, 1991). Analytical results for the Sump 91 liquid sample were not reported. The sump was excavated and removed in 1994. The sump was empty at the time of removal, and there were no signs of cracks or leaks. The maximum excavation depth was approximately 6 feet bgs. Four soil samples were collected by PRC from the excavation sidewalls and bottom to evaluate potential contamination. PCE was detected in one soil sample at an estimated concentration of 3  $\mu\text{g}/\text{kg}$ . PCE was not detected above laboratory reporting limits in the other three samples (PRC, 1995).

### 1.2.5 Unsaturated Zone Source Removal

Building 88 was demolished in 1994; the foundation, floor, floor drains, collection trenches, and subsurface piping were excavated and removed. One hundred and nineteen pre-excavation soil samples were collected at locations throughout the building footprint, including under the floor, drains, piping and trenches, and foundation (PRC, 1995). Soil samples beneath the floor were collected at depths of approximately 1.5 to 3 feet bgs. Soil samples beneath the drains, piping, and trenches were collected at 3 to 5 feet bgs. Soil samples beneath the foundation were collected at 4 to 6 feet bgs. PCE was detected at concentrations above the negotiated cleanup level (500 µg/kg) in three pre-excavation soil samples (see Figure I-5): 1,000 µg/kg detected in a pre-excavation soil sample adjacent to a floor drain, 580 and 540 µg/kg detected in pre-excavation soil samples in the southwest corner of the equipment room. PCE was not detected above laboratory reporting limits (approximately 12 µg/kg) in 69 pre-excavation soil samples. The remaining 47 pre-excavation soil samples had PCE concentrations between laboratory reporting limits and the cleanup level. The pre-excavation soil PCE concentrations varied over a relatively small distance. For example, PCE was detected at 21 µg/kg in a soil sample 2 feet southeast of and 2 feet shallower than the soil sample with the maximum PCE concentration of 1,000 µg/kg.

Approximately 400 cubic yards of soil were excavated from two areas where soil sample PCE concentrations exceeded the cleanup level of 500 µg/kg (see Figure I-5). Soil in these two areas was excavated to the water table, approximately 7 to 8 feet bgs. Seven post-excavation bottom-hole samples were collected from the two areas. PCE was detected at a concentration of 1,100 µg/kg in the post-excavation bottom-hole soil sample in the north area excavation. No additional excavation was accomplished due to encountering groundwater.

### 1.2.6 Saturated Zone Contaminant Removal

A groundwater source control measure was installed in 1994 to provide hydraulic control of potential residual saturated zone contamination from the former Building 88 (Tetra Tech EM, Inc. [TtEMI], 2001). The groundwater source control measure, referred to as the Building 6 Treatment System, was located north of the former Building 88 and installed in October 1994. The Building 6 Treatment System extracted and treated chlorinated solvent-contaminated groundwater using two granular activated carbon units in series from converted groundwater monitoring well W9-46 (see Figure I-5) (TtEMI, 2001). Based on a review of quarterly National Pollutant Discharge Elimination System reports, the Building 6 Treatment System extracted and treated approximately 800,000 gallons of groundwater. A total of 2.4 pounds of VOCs were removed by the Building 6 Treatment System. The system was shut down in 1997 because of the installation and operation of the WATS.

The WATS went on-line in November 1998 and remains in operation. The system includes six extraction wells screened in the upper portion of the A aquifer and three extraction wells screened in the lower portion of the A aquifer. These extraction wells, in conjunction with Middlefield-Ellis-Whisman (MEW) regional extraction wells, maintain hydraulic capture at the northern (leading) edge of the regional groundwater plume. Contamination that migrates from sources upgradient of the WATS area and residual on-site contaminant sources, including the former Building 88, is captured and treated. Upper A aquifer extraction well EA1-1 was constructed as a source control well to replace extraction well W9-46.

### **1.2.7 WATS Rebound Testing**

One of the objectives of the *Final West-Side Aquifers Treatment System Optimization Work Plan* (Foster Wheeler Environmental Corporation [FWENC], 2003) was to conduct rebound groundwater sampling at extraction well EA1-1 and the surrounding monitoring wells. Extraction well EA1-1 was temporarily turned off on April 12, 2004, for testing and turned back on December 3, 2004. The results of the rebound testing were interpreted to suggest a continuing source of PCE upgradient of EA1-1. Concentrations of PCE in groundwater samples from monitoring well W9-46 increased from approximately 100 µg/L (baseline concentration – extraction well operating) to over 200 µg/L (rebound concentration – approximately 6 months after the extraction well was turned off).

PCE concentrations from the 2004 annual sampling event for the WATS in the area of the former Building 88 were evaluated. The PCE concentrations in extraction wells are not used in the contouring process since they are not representative of the extraction well location, but rather of the area of groundwater captured by the extraction well. The results are summarized below.

#### **Upper A Aquifer – PCE Plume**

The PCE plume in the upper portion of the A aquifer is approximately 2,000 feet long and 150 feet wide (Figure 1-6). The highest concentration of PCE in the WATS area, within the upper A aquifer, was reported as 230 µg/L in a sample collected from groundwater monitoring well W9-46. Monitoring well W9-46 is located approximately 100 feet northeast of the Building 88 footprint.

#### **Lower A Aquifer – PCE Plume**

The PCE plume in the lower portion of the A aquifer is approximately 1,700 feet long and 300 feet wide. The plume is located west of Hangar 1 (Figure 1-7). The highest concentration of PCE in the WATS area, within the lower A aquifer, was reported at an estimated concentration of 410 µg/L in a sample collected from groundwater monitoring well W9-20. Monitoring well W9-20 is located approximately 250 feet west of Hangar 1.

### 1.3 WORK PLAN ADDENDUM OBJECTIVES

The objectives identified in the *Final West-Side Aquifers Treatment System Optimization Work Plan Addendum 1* (TtFW, 2005a) included the following:

- Evaluate whether the residual vadose zone PCE is a continuing source of contamination for groundwater.
- Evaluate the extent of saturated soils with PCE concentrations that could be a source of groundwater contamination.
- Evaluate the delineation and understanding of the nature of the downgradient PCE groundwater plume.
- Evaluate PCE source area treatability, if appropriate.

### 1.4 REPORT ORGANIZATION

This Report is organized as follows:

- **Section 1.0** provides the former Building 88 site description, a summary of previous investigations, Work Plan Addendum objectives, and Report organization.
- **Section 2.0** presents the soil gas survey objectives, field activities, and results.
- **Section 3.0** presents the continuous core drilling objectives, field activities, and results.
- **Section 4.0** presents the cone penetrometer and direct push testing objectives, field activities, and results.
- **Section 5.0** presents the groundwater monitoring well drilling, construction, and completion.
- **Section 6.0** presents the groundwater sampling objectives, field activities, and results.
- **Section 7.0** presents the results of the sample quality review.
- **Section 8.0** presents the geology and hydrogeology.
- **Section 9.0** presents source evaluation and contaminant fate and transport.
- **Section 10.0** presents the treatability study objectives and results.
- **Section 11.0** presents conclusions.
- **Section 12.0** includes a list of references.
- **Tables, Figures, and Plates** are included with the text.
- **Appendix A** includes project photographs.
- **Appendix B** includes the analytical result reports and chain-of-custody documentation on compact disk.
- **Appendix C** contains survey data.



- **Appendix D** contains the continuous core permits and lithologic logs, the monitoring well boring and construction logs, and monitoring well development logs.
- **Appendix E** contains the cone penetrometer testing permits and logs.
- **Appendix F** includes low-flow groundwater sampling data sheets.
- **Appendix G** includes a detailed quality assurance/quality control report.
- **Appendix H** includes the ISOTEC laboratory treatability study report.
- **Appendix I** includes the Microbial Insights treatability study report.

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## 2.0 SOIL GAS SURVEY

This section provides a summary of the objective, activities, and results of the soil gas survey.

### 2.1 SOIL GAS SURVEY OBJECTIVE

The objective of the soil gas survey was to identify areas where tetrachloroethene (PCE) was present in the subsurface, as specified in Data Quality Objective Decision Question No. 1 in the Sampling and Analysis Plan to the *Final West-Side Aquifers Treatment System Optimization Work Plan Addendum 1* (Tetra Tech FW, Inc. [TtFW], 2005a): Is PCE detected above action levels for samples collected in the vadose zone, which would indicate a potential source area? Results of the soil gas survey were used to direct the subsequent investigation. Specific targets were to:

- Evaluate the potential presence of source areas beneath the Building 88 footprint.
- Evaluate the potential presence of source areas along the downstream sanitary sewer alignment piping.

### 2.2 SOIL GAS SURVEY ACTIVITIES

The activities associated with conducting the soil gas survey were the following:

- Geophysical survey for underground utilities
- Installation of soil gas sampling probes
- Soil gas sampling and analysis for PCE, trichloroethene (TCE), cis-1,2-dichloroethene (cis-1,2-DCE), and vinyl chloride (VC)
- Soil gas sample probe removal, site restoration, and sample location survey

The soil gas survey was completed in accordance with the *Final West-Side Aquifers Treatment System Optimization Work Plan Addendum 1* (TtFW, 2005a). Initial soil gas survey locations were based on previous soil gas survey detections of PCE, reported residual PCE after Building 88 demolition and groundwater detections of PCE. Fifty soil gas probes were installed: 38 as originally proposed and 12 as step-outs at locations where PCE soil gas was detected at concentrations above 500 parts per billion by volume (ppbv). The value of 500 ppbv was chosen because it is half the average of the historical PCE soil gas concentrations. Soil gas probe locations and the survey results (described in Section 2.3) are shown on Figures 2-1 and 2-2. Soil gas probe installation and sampling activity photographs were provided in Appendix A.

### **2.2.1 Soil Gas Probe Installation**

Soil gas probes were installed between April 4 and April 7, 2005. Underground Service Alert was notified and a geophysical survey was performed at each proposed soil gas probe location before installation. A nominal 2-inch-diameter hand-auger was used to advance 50 borings to 5 feet below ground surface (bgs). Soil gas probes were installed in each boring. The soil gas probes consisted of a 1.4-inch-long, 0.35-inch outside diameter porous probe tip, connected to 0.25-inch-diameter Teflon<sup>®</sup> tubing, using a barbed pressure fitting (see Appendix A, Photograph A-3). The top of the tubing was connected with a barbed pressure fitting to a threaded cap to seal the probe from the atmosphere.

Approximately 1 inch of filter sand was placed in the bottom of the boring. The probe tip and tube assembly were lowered to the bottom of the boring, with the probe tip resting on the filter sand. Five additional inches of filter sand were placed in the annular space across and above the probe tip (see Appendix A, Photograph A-4). Coarse granular bentonite was placed above the filter sand to land surface and then hydrated with potable water. The bentonite surface seal was visually inspected to ensure that the probe had been sealed from the atmosphere (see Appendix A, Photograph A-5).

Twenty-seven soil gas probes were installed within, or immediately adjacent to the Building 88 footprint (see Figure 2-2). Soil gas probes were installed along the former floor drains, drain lines, trenches, pits, sumps, and tank to evaluate the potential presence of PCE source areas beneath the Building 88 footprint. Eight soil gas probes were installed along the sewer alignment downgradient of Sump 66, as originally planned. Thirteen soil gas probes were installed as step-outs from the original eight locations along the sewer alignment (see Figure 2-1). Two soil gas probes were installed north of National Aeronautics and Space Administration (NASA) Building N210, as originally planned (see Figure 2-1). The two soil gas probe locations downgradient of NASA Building N210 were selected due to the observed increase in PCE concentration in samples collected from the upper A aquifer groundwater monitoring wells 14D29A and 14D12A.

Forty-seven soil gas probes were successfully installed and sampled (see Figures 2-1 and 2-2). Three soil gas probes (SG-88-W1, SG-88-W2, and SG-88-W3), located along the sewer line and a storm drain, produced water during purging and were not sampled (see Figure 2-1).

### **2.2.2 Soil Gas Probe Sampling**

Soil gas probes were sampled approximately 24 hours after installation. A 60-cubic centimeter (cc) syringe with a stop-cock valve on the intake was threaded to the cap on the end of the soil gas probe tubing for a gas-tight seal (see Appendix A, Photograph A-6). A purge volume test was conducted at the first sampling location, SG-88-1. The purge test was conducted in accordance with California Department of Toxic Substances Control protocol (California

Environmental Protection Agency, Department of Toxic Substances Control and California Regional Water Quality Control Board, 2003). The purge test consisted of collecting samples after purging one probe tip and tubing volume (approximately 30 ccs), three tube and tip volumes, and seven tube and tip volumes. The highest gas concentration of a volatile organic compound (VOC), which happened to be TCE, was detected in the gas sample collected after purging seven probe tip and tubing volumes. Therefore, all subsequent soil gas probes were purged of seven probe tip and tubing volumes prior to sampling.

Prior to sampling, the soil gas probe was purged by withdrawing seven tip and tubing volumes with a 60-cc syringe. The syringe was evacuated to the atmosphere during purging. During purging and sampling, the syringe plunger was withdrawn at a constant rate in an effort to withdraw soil gas at a flow rate less than 200 milliliters (mL) per minute (see Appendix A, Photograph A-6). The syringe was used to collect the gas sample after purging. The stop-cock was shut and the soil gas syringe was immediately transferred to an on-site mobile laboratory for analysis after collecting the soil gas sample.

Prior to sampling, 1,1-difluoroethane was introduced at the junction of the tubing and the bentonite seal as a tracer compound for the purpose of leak testing. The tracer compound was included in the VOC analysis to determine if there was a leak in the annular seal. The tracer compound was not detected in any of the sample results (see soil gas sample report narrative in Appendix B), indicating that all of the soil gas samples were representative of subsurface soil gas.

### **2.2.3 Soil Gas Probe Removal**

The soil gas probe tubes were pulled out of the ground once all soil gas probes had been sampled. Additional coarse granular bentonite was added to the resulting hole and hydrated. In paved areas, the bentonite was removed to the base of the pavement, then backfilled with concrete to match the existing grade. Horizontal and vertical coordinates for the soil gas probes were surveyed. Survey data for the soil gas probes are provided in Appendix C.

## **2.3 SOIL GAS SURVEY RESULTS**

Potential PCE source areas were identified along the sewer alignment (along Cummins Avenue between S. Akron Road and Wescoat Road, and along Wescoat Road to the east of Sump 66) and in the footprint of the equipment room within the Building 88 footprint. Soil gas sample results were shown on Figures 2-1 and 2-2 and are summarized in Table 2-1. The Building 88 area overlies the regional TCE plume, and thus, although reported, TCE, cis-1,2-DCE, and VC gas concentrations were not used to evaluate potential source areas. The highest soil gas PCE concentrations were detected in samples collected along the sewer alignment, downstream of the former Building 88, suggesting that PCE entered the subsurface through leaks in the sewer line.

Soil gas PCE concentrations reported for samples collected within the Building 88 footprint ranged from below the laboratory reporting limit of 140 ppbv to 1,200 ppbv (see Figure 2-2). PCE soil gas concentrations were below laboratory reporting limits in samples from 11 out of 12 soil gas probes (SG-88-11, SG-88-12, SG-88-14 through SG-88-21, and SG-88-36) located near the former floor drains and drain lines that discharged to Sump 91. Soil gas PCE concentrations were below the laboratory reporting limit in the samples collected from SG-88-10 and SG-88-15 located to the north and south of Sump 91, respectively. Soil gas PCE concentrations were at or above the laboratory reporting limit in samples from 11 of 13 probes located in the former equipment room and near the floor drains that discharged to Sump 66 (see Figure 2-2). However, the soil gas PCE concentrations were below the laboratory reporting limit for the samples collected from soil gas probes SG-88-1 and SG-88-31, north and south of the Sump 66 location, respectively.

Soil gas PCE concentrations in samples collected along the sewer alignment ranged from below the laboratory reporting limit of 140 ppbv to 11,000 ppbv (see Figure 2-1). Eight soil gas probes (SG-88-2 through SG-88-7, SG-88-35, and SG-88-W1) were installed directly above the sewer line. Soil gas PCE was detected at concentrations greater than 500 ppbv in samples collected from all soil gas probes along the sewer alignment downstream of Sump 66 (to the east along Wescoat Road and then to the north along Cummins Avenue) until about S. Akron Road. All soil gas PCE concentrations in samples collected from probes along Cummins Avenue to the north of S. Akron Road (SG-88-44, SG-88-6, and SG-88-7) were less than the laboratory reporting limit. Reported soil gas PCE concentrations along the sewer alignment were highest in samples collected from probes along Cummins Avenue from Wescoat Road north to just east of Building 64. PCE was detected in soil gas samples collected at SG-88-2 through SG-88-5 at 750 ppbv, 900 ppbv, 11,000 ppbv, and 1,300 ppbv, respectively.

Additional soil gas probe locations (step-outs) were installed and sampled to further characterize locations along the sanitary sewer where PCE concentrations were greater than 500 ppbv (see Figure 2-1) in accordance with the *Final West-Side Aquifers Treatment System Optimization Work Plan Addendum 1* (TtFW, 2005a):

- Soil gas probes SG-88-37, SG-88-39, SG-88-40, and SG-88-41 were installed as step-outs to soil gas probe SG-88-2.
- Soil gas probes SG-88-42 and SG-88-W2 were installed as step-outs to SG-88-3.
- Soil gas probes SG-88-43, SG-88-W2, and SG-88-W3 were the step-outs for SG-88-4.
- Soil gas probes SG-88-38, SG-88-43, and SG-88-44 were installed as step-outs to SG-88-5.
- Soil gas probe SG-88-47 was the step-out for SG-88-38.

- Soil gas probes SG-88-45 and SG-88-46 were installed as step-outs for SG-88-W3 (These step-outs were constructed since SG-88-W3 could not be sampled [see below]).

Three soil gas probes could not be sampled due to the presence of water: SG-88-W1, SG-88-W2, and SG-88-W3. A storm drain was located adjacent to each soil gas probe location where water was detected. The water detected in the soil gas probes appears to have been stormwater infiltrating into the storm drain trench backfill material and not groundwater, since step-out soil gas probes did not contain water.

Soil gas PCE concentrations were not detected above laboratory reporting limits in the two gas samples collected to the north of NASA Building N210 (SG-88-8 and SG-88-9).

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### 3.0 CONTINUOUS CORE DRILLING

This section provides a summary of the objectives, activities, and results of activities associated with continuous core drilling.

#### 3.1 CONTINUOUS CORE DRILLING OBJECTIVES

Objectives of continuous core drilling were to provide lithologic logs for correlation with the subsequent cone penetrometer testing (CPT) logs (see Section 4.0), and to identify sampling intervals for the collection of data necessary to answer Data Quality Objective Decision Question No. 2 in the Sampling and Analysis Plan to the *Final West-Side Aquifers Treatment System Optimization Work Plan Addendum 1* (Tetra Tech FW, Inc. [TtFW], 2005a): Is tetrachloroethene (PCE) detected above action levels for samples collected in the saturated zone, which would indicate a potential source area? Specifically, the objectives were to:

- Prepare lithologic logs from continuous core.
- Screen core for PCE and volatile organic compounds (VOCs).
- Collect soil samples for laboratory analysis based on field screening results.
- Compare lithologic logs to laboratory grain-size distributions.
- Identify lithologic layers for subsequent direct push technology (DPT) soils and groundwater sampling.

#### 3.2 CONTINUOUS CORE DRILLING FIELD ACTIVITIES

The activities associated with conducting continuous core drilling were the following:

- Geophysical survey for underground utilities
- Drilling (using a hollow-stem auger rig) to collect a continuous core
- Logging the core by a field geologist
- Field screening the core for PCE (using compound-specific Draeger® tubes) and total VOCs (using a photoionization detector [PID])
- Sampling select intervals for VOCs, total organic carbon (TOC), grain-size, and treatability testing
- Boring backfilling, site restoration, and surveying

Five continuous core borings were completed in accordance with the *Final West-Side Aquifers Treatment System Optimization Work Plan Addendum 1* (TtFW, 2005a). Continuous core boring locations are shown on Figures 3-1 and 3-2. Continuous core boring CC-88-I was located approximately 500 feet north (hydrologically downgradient) of the former Building 88 (see Figure 3-1). CC-88-I was randomly located to be outside a potential source area. Continuous

core borings CC-88-2 through CC-88-5 were located near the Sump 66 excavation, the northern remedial excavation, the Tank 68 excavation, and the southern remedial excavation, respectively (see Figure 3-2). Continuous core boring locations CC-88-2 through CC-88-5 were selected to investigate potential PCE source areas. A continuous core boring was not located at the Sump 91 excavation due to lack of PCE detections in soil gas samples collected upgradient and downgradient of the sump site (see Section 2.3). Soil coring and sampling activity photographs were included in Appendix A.

### 3.2.1 Core Collection

Continuous core borings were drilled between April 6 and April 8, 2005. Underground Service Alert was notified, a geophysical survey performed, and each location was cleared by hand-augering to 5 feet below ground surface (bgs). Continuous core borings were advanced to 59 feet bgs using a hollow-stem auger drill rig equipped with nominal 8¼-inch outside diameter hollow-stem augers (see Appendix A, Photograph A-7). Soil cores were collected using either a 5-foot-long, nominal 4-inch-diameter, or a 2½-foot-long, nominal 2-inch-diameter, split-barrel sampler. The core barrels were attached to 5-foot-long drill rods and lowered into the boring so that the core barrel tip extended in front of the auger bit. The core barrel was advanced ahead of the augers as the augers were advanced. The core barrel was retrieved when a distance equal to the length of the core barrel was drilled.

Not all soil cores were completely recovered. Soil core recovery ranged from 57 percent to 78 percent. Core loss appeared random, occurring in both fine- and coarse-grained lithology, shallow or at depth, using the 5-foot-long or 2½-foot-long sampler, and with or without a sand catcher. Heaving sands (a fine-grained sand/groundwater mixture that enters the augers due to reduced pressure within the augers) created difficulties in the collection of soil core at some locations. Water was added to the augers to assist holding back heaving sands with mixed success.

### 3.2.2 Lithologic Logging

Soil cores were logged in the field by a California Professional Geologist in accordance with the Unified Soils Classification System (USCS), as described in *Visual Classification of Soil* (Bureau of Reclamation, 1986), and the *2000 Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)* (American Society for Testing and Materials [ASTM] D2488-00), using a Munsell soil chart (1990 revised edition) for color designation. The logs are included in Appendix D. Twelve samples were collected from the soil cores for geotechnical laboratory grain-size distribution analysis. Five coarse-grained (primarily sandy soil) and seven fine-grained (primarily silty and clayey soil) soil samples were selected and analyzed by a geotechnical laboratory using ASTM D6913-04 and D422-63, respectively. Coarse-grained soil samples were selected from the following borings and depths:

- CC-88-1 at 15 to 15.5 feet bgs and 52 to 52.5 feet bgs
- CC-88-2 at 20 to 20.5 feet bgs
- CC-88-4 at 41.5 to 42 feet bgs
- CC-88-5 at 43.5 to 44 feet bgs

Fine-grained samples were selected from the following locations and depths:

- CC-88-1 at 9 to 9.5 feet bgs
- CC-88-2 at 12.5 to 13 feet bgs
- CC-88-3 at 7 to 7.5 feet bgs
- CC-88-4 at 6 to 6.5 feet bgs and 58 to 58.5 feet bgs
- CC-88-5 at 27.5 to 28 feet bgs and 51.5 to 52 feet bgs

Grain-size distribution results (provided in Appendix B) were used to correlate the field geologist's lithologic logs. Grain-size distribution results and lithologic logging correlation are described in Section 3.3.1.

### 3.2.3 Field Screening

Soil samples from each core were collected and screened in the field using PCE-specific Draeger® tubes and a PID. Soil samples were collected from both coarse- and fine-grained strata throughout the core. Soil sample selection focused on the base of coarse-grained units and the tops of the next lower fine-grained units to evaluate contamination distribution. Soil samples were placed in sealable plastic bags, filling about 1/3 of the bag, and placed on the dash of the pickup truck with the engine heater/defroster running to maintain the temperature at about 70 degrees Fahrenheit. After a minimum of 5 minutes, a corner of the sealable bag was opened and a PCE-specific Draeger® tube (range of zero to 1 parts per million [ppm]) inserted. Readings were recorded in the field logbook. After completing the Draeger® tube measurement, the PID tip was inserted into the same small opening of the sealable bag. PID readings were also recorded in the field logbook.

### 3.2.4 Soil Sampling

Sections of the soil core were collected for VOC analysis by an analytical laboratory using U.S. Environmental Protection Agency (EPA) Method 8260B and for TOC analysis using the Walkley-Black method (see Appendix A, Photograph A-8). Photograph A-8 shows the sampling procedures for the collection of soil samples for Walkley-Black analysis. Soil samples were collected at the same depths that field screening samples were collected. Select soil samples were analyzed for grain-size distribution, as described in Section 3.2.2. A bulk soil sample collected between 24 and 27.5 feet bgs in boring CC-88-3, consisting of fine to coarse sand with gravel,

was retained for a chemical oxidation laboratory treatability study. The Building 88 investigation was designed for characterization of soils and groundwater contamination, and treatability screening. Chemical oxidation was considered to have a low success potential because of known fine-grained layers within the A aquifer. Therefore, only one sample was collected for the chemical oxidation treatability study.

Soil samples were to be collected from the vadose zone source area (underlying the Building 88 footprint) representing low, medium, and high PCE concentrations to evaluate PCE leachability to the upper portion of the A aquifer. These samples were to address potential unsaturated zone source contribution to the upper portion of the A aquifer. However, due to findings of relatively high saturated zone soils concentrations of PCE in the upper portion of the A aquifer, a field decision was made not to collect and evaluate PCE leachability from unsaturated zone soil samples.

### **3.2.5 Core Boring Backfilling and Location Survey**

Each boring was backfilled with a Portland cement-bentonite grout mixture. The grout was pumped from the bottom of the boring using a tremie pipe in accordance with Santa Clara Valley Water District permit requirements. Boring permits were included in Appendix D. Soil core boring CC-88-1 was repaved to match the existing surface. The remaining soil core borings were completed with soil at land surface, as they were located in an unpaved vacant lot. Soil core boring horizontal and vertical coordinates were surveyed. Survey data for the soil core borings are included in Appendix C.

## **3.3 CONTINUOUS CORE DRILLING AND SAMPLING RESULTS**

Continuous core drilling and sampling activities were accomplished primarily to correlate the field geologist's lithologic logs and subsequent CPT logs, and to identify lithologic layers for subsequent DPT soil and groundwater sampling. Activity results are summarized below. The results of the bulk soil core sample collected for chemical oxidation treatability analysis are described in Section 10.0. Lithologic symbols provided in this section are based on the Unified Soil Classification System, as described in *Visual Classification of Soil* (Bureau of Reclamation, 1986) and the *2000 Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)* (ASTM D2488-00).

### 3.3.1 Lithologic Log Correlation

Twelve soil core samples were selected for grain-size distribution analysis (see Section 3.2.2). The grain-size distribution results were compared to the corresponding continuous soil core boring log descriptions for each depth-specific sample interval. The field geologist's continuous soil core boring log, based on the USCS visual analysis methods, were comparable with grain-size distribution analysis for all samples.

The lithologic logs for the continuous core borings (provided in Appendix D) are considered valid.

### 3.3.2 Sampling Interval Selection and Analytical Results

The intent of the PCE-specific Draeger<sup>®</sup> tube and PID field screening was to determine the lithologic intervals of PCE-contaminated soils (such as within the more permeable coarse-grained soils or the less permeable fine-grained soils). It was intended that these data would be used to select soil core intervals to be retained for laboratory analysis. Results of the laboratory analysis would then be used to identify lithologic intervals that would be sampled during subsequent DPT activities. As specified in Section 3.2.3, screening focused on the base of coarse-grained units and the tops of the next lower fine-grained units to evaluate PCE contamination distribution. However, there was no response in the PCE-specific Draeger<sup>®</sup> tube analysis for 28 of 35 screening attempts. Positive Draeger<sup>®</sup> tube responses, ranging from 0.5 to 1.0 ppm, were detected in seven samples. Therefore, field screening results using the Draeger<sup>®</sup> tube responses were not used for selecting soil core intervals to be retained for laboratory analysis.

PID screening readings of soil samples ranged from zero to 675 ppm. There was no apparent correlation between PID and Draeger<sup>®</sup> tube readings. The sample with the greatest PID reading (from boring CC-88-1 at 52 to 52.5 feet bgs, with 675 ppm) had a Draeger<sup>®</sup> tube reading of zero. Of the seven soil samples with positive Draeger<sup>®</sup> tube responses, six soil samples had PID readings of zero. It was suspected that the PID readings were measuring other VOCs (such as trichloroethene [TCE] in the regional plume). Therefore, field screening results using the PID readings were not used for selecting core intervals to be retained for laboratory sample analysis.

Because field screening appeared unsuccessful in providing the data needed to select samples for laboratory analysis, 33 out of 35 core intervals screened in the field were retained for VOC and TOC laboratory analysis. PCE analytical results are included in Table 3-1. VOC and TOC analytical results are included in Table 3-2. Laboratory analytical result evaluation confirmed no apparent correlation between field screening results and analytical results. Soil samples such as those collected from boring CC-88-3 at 14-14.5 feet bgs with a PCE concentration of 5,200

micrograms per kilogram ( $\mu\text{g/kg}$ ) (the greatest PCE concentration detected during continuous soil core sampling) had a corresponding Draeger<sup>®</sup> tube reading of zero ppm (see Table 3-1). The seven screening samples with positive Draeger<sup>®</sup> tube responses had corresponding analytical results ranging from non-detected at the laboratory reporting limit of 6  $\mu\text{g/kg}$ , to detected at an estimated concentration below the laboratory reporting limit.

Soil concentrations of PCE above the laboratory reporting limit of 6  $\mu\text{g/kg}$  were detected at four out of the five continuous soil core locations. PCE was not detected above estimated concentrations in any soil sample from boring CC-88-5, located in the southern remedial excavation area. Elevated soil PCE concentrations (greater than 480  $\mu\text{g/kg}$ ) were detected in four out of five depth intervals sampled between 12.5 and 26.5 feet bgs from boring CC-88-2, located about 4 feet north of Sump 66. The EPA Region 9 residential soils Preliminary Remediation Goal (PRG) of 480  $\mu\text{g/kg}$  for PCE was used for the site screening value for soils. The soils PRG's role in site screening was to help identify areas that may require further attention. The residential soils PRG for PCE is slightly lower than the cleanup level identified in the Middlefield-Ellis-Whisman Record of Decision (soil remediation standard for PCE of 100 times the corresponding groundwater value of 5 micrograms per liter [ $\mu\text{g/L}$ ] – 500 micrograms per kilogram [ $\mu\text{g/kg}$ ]). Elevated soil PCE concentrations were detected in four out of four depth intervals sampled between 9.5 and 19.5 feet bgs from boring CC-88-3, located in the northern remedial excavation area. PCE concentrations from boring CC-88-1, located hydraulically downgradient of the Building 88 footprint, ranged from an estimated value below the laboratory reporting limit of 6  $\mu\text{g/kg}$  to 35  $\mu\text{g/kg}$  at 9 to 9.5 feet bgs. Soil PCE concentrations from boring CC-88-4, located about 8 feet west of the Tank 68 excavation area, ranged from an estimated value below the laboratory reporting limit of 6  $\mu\text{g/kg}$  to 110  $\mu\text{g/kg}$  at 9.5 to 10 feet bgs.

The relationship between soil type (coarse-grained versus fine-grained) and PCE distribution is demonstrated in the soil sample results from boring CC-88-2, located near Sump 66 (see Table 3-1). Elevated concentrations of PCE were detected in both coarse- and fine-grained soil from this boring. However, the highest soil PCE concentrations were detected in coarser grained material (sand and silty sand). For example, at 12.5 to 13 feet bgs, PCE was detected in silt (ML) at 1,600  $\mu\text{g/kg}$ . In a silty sand (SM) layer below the silt (ML) at 18.5 to 19.5 feet bgs, PCE was detected at 2,300  $\mu\text{g/kg}$ . Immediately below the silty sand (SM) at 20.5 to 21 feet bgs, PCE was detected in silt (ML) at 52  $\mu\text{g/kg}$ . Similarly, at 25 to 25.5 feet bgs, PCE was detected in silt (ML) at 1,300  $\mu\text{g/kg}$ . One foot deeper at 26 to 26.5 feet bgs, PCE was detected in sand to silty sand (SW-SM) at 2,000  $\mu\text{g/kg}$ . Immediately below the sand (SW-SM) at 26.5 to 27 feet bgs, PCE was detected in clay (CL) at an estimated concentration below the laboratory reporting limit of 6  $\mu\text{g/kg}$ .

The following lithologic layers were selected as the focus of soil and groundwater DPT sampling based on the continuous core analytical results and site history:

- A lithologic layer between approximately 9 and 12 feet bgs: groundwater was often first observed within this range. This range is also the approximate depth at which PCE may have entered the subsurface (via sewer trench, or sump and tank excavation bottoms), as evidenced by the soil PCE concentrations from borings CC-88-2 through CC-88-4. Soil and groundwater sample collection was attempted at this depth range at each CPT/DPT location, whether or not the CPT log indicated the presence of permeable soils.
- All permeable layers: Soil and groundwater sample collection was attempted at each permeable layer indicated on the CPT log. In the absence of obvious permeable layers consisting of sand or sand and gravel (as indicated on the CPT logs), samples from silt with elevated cone bearing measurements and zero pore water pressure measurements (possible indicators of sufficient permeability to yield a water sample) were attempted.
- A silt or clayey silt layer usually between 30 and 40 feet bgs: This interval was often void of highly permeable sand and gravely sand. Soil and groundwater samples from silt or clayey silt were collected to evaluate the distribution of PCE in zones of lower permeability.

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## 4.0 CONE PENETROMETER AND DIRECT PUSH TESTING

This section provides a summary of the objective, activities, and results of activities associated with cone penetrometer testing (CPT) logging and direct push technology (DPT) sampling.

### 4.1 CPT OBJECTIVES

Objectives of CPT logging and DPT sampling were to answer Data Quality Objective Decisions Questions Nos. 2 and 3 in the Sampling and Analysis Plan to the *Final West-Side Aquifers Treatment System Optimization Work Plan Addendum 1* (Tetra Tech FW, Inc. [TtFW], 2005a): Is tetrachloroethene (PCE) detected above action levels in the saturated zone, which would indicate a potential source area? Is PCE detected above action levels in the saturated zone downgradient from the source area? Specifically, the objectives were to:

- Compare CPT logs with adjacent corehole lithologic logs.
- Evaluate CPT logs and soil core analytical data to identify lithologic layers for sampling.
- Collect groundwater and soil samples needed to evaluate PCE extent.
- Collect groundwater and soil samples needed to evaluate environmental response actions.

### 4.2 CPT/DPT FIELD ACTIVITIES

The activities associated with CPT logging and sampling were the following:

- Geophysical survey for underground utilities
- CPT logging
- DPT groundwater HydroPunch<sup>®</sup> sampling for volatile organic compounds (VOCs), anions, cations, and treatability studies
- DPT soil sampling for VOCs, total organic carbon (TOC), and treatability studies
- Boring backfilling, site restoration, and surveying

Twenty-three CPT/DPT locations were logged in accordance with the *Final West-Side Aquifers Treatment System Optimization Work Plan Addendum 1* (TtFW, 2005a). CPT/DPT locations are shown on Figures 4-1 and 4-2. Three borings were advanced at each CPT/DPT location. The initial CPT boring was advanced to collect geologic information. This site-specific geologic information was used to select depth-specific intervals for DPT groundwater and soil sampling from the remaining two borings. After collecting the geologic information, the initial CPT boring was properly backfilled with a Portland cement-bentonite grout mixture using a tremie pipe. The second boring was advanced using DPT equipment to collect depth-specific groundwater

samples. The second boring was located about 4 feet away from the first boring and was always used to collect groundwater samples to minimize the potential for grout slurry infiltration from adjacent borings. After collecting groundwater samples, the second boring was properly backfilled. The third boring was located about 4 feet away from the second boring. The third boring was advanced using DPT equipment to collect depth-specific soil samples. After collecting the soil samples, the third boring was properly backfilled. Finally, the site was restored to the pre-investigation condition. Corresponding DPT groundwater and soil sampling borings were not given a distinct name from the CPT boring. All DPT borings for groundwater and soil sampling were identified by the initial CPT boring identification.

CPT/DPT locations were logged and sampled between April 11 and May 6, 2005. Underground Service Alert was notified, a geophysical survey performed to locate underground utilities, and each borehole was cleared by hand-augering to 5 feet below ground surface (bgs) (see Appendix A, Photograph A-10).

CPT-88-1 was located about 2 feet south of Sump 66, as shown on Figure 4-2. CPT-88-1 was located about 8 feet south of continuous core boring CC-88-2 to ensure that samples collected at the CPT location would not be compromised by cement-bentonite grout used to backfill the continuous core boring. CPT-88-1 through CPT-88-4, CPT-88-9, and CPT-88-10 were located at the former Building 88 area, as originally proposed (see Figure 4-2). CPT-88-5 through CPT-88-8, CPT-88-11, and CPT-88-12 were located downgradient of the Building 88 footprint, as originally proposed (see Figure 4-1). CPT-88-13, CPT-88-15, CPT-88-19, and CPT-88-20 were located along the sewer line to investigate soil gas hot spots. CPT-88-14, CPT-88-16, CPT-88-17, CPT-88-18, CPT-88-21, CPT-88-22, and CPT-88-23 were located as step-outs (see Figures 4-1 and 4-2). CPT/DPT activity photographs were included in Appendix A.

#### 4.2.1 CPT Lithologic Logs

CPT logging consisted of collecting continuous geologic information from 5 to 60 feet bgs. CPT-88-1, CPT-88-3, CPT-88-9, and CPT-88-10 were located 4 to 8 feet from the continuous soil cores borings CC-88-2, CC-88-3, CC-88-5, CC-88-4, respectively. The spacing was selected to enable CPT lithologic log to continuous core lithologic log correlation (see Section 4.3.1) and to minimize the potential for grout slurry infiltration from the backfilled continuous core borings to adversely affect DPT sample quality. CPT-88-6 was located approximately 20 feet from CC-88-1. The spacing was a departure from the *Final West-Side Aquifers Treatment System Work Plan* (Foster Wheeler Environmental Corporation, 2003), but facilitated traffic flow in the parking area where CPT-88-6 and CC-88-1 were located. CPT lithologic logs are included in Appendix E.

#### 4.2.2 Groundwater Sampling

At each CPT logging location, a DPT boring was advanced to the desired depth intervals for groundwater sampling using HydroPunch® equipment. Groundwater samples were collected or attempted at the depth intervals described in Section 3.3.2. Groundwater samples were collected over an exposed 2-foot screen interval using a disposable Teflon™ bailer. A total of 116 depth-specific groundwater HydroPunch® samples were collected from 23 CPT/DPT locations. The HydroPunch® screen was left open to the formation for at least 20 minutes (as specified in the Sampling and Analysis Plan to the *Final West-Side Aquifers Treatment System Optimization Work Plan Addendum 1* [TiFW, 2005a]) to allow groundwater to enter the screen at each sample interval. Groundwater could not be collected in 17 sampling intervals, as there was no groundwater within the well screen or there was insufficient volume for sampling after waiting at least 20 minutes with the HydroPunch® screen left open to the formation. These attempted sampling intervals are indicated with a “no water” note on the CPT logs (see Appendix E). Groundwater samples were analyzed for VOCs, anions, and cations. Four groundwater samples were analyzed for microorganisms (two collected from location CPT-88-3 and two collected from location CPT-88-19). One groundwater sample (collected from location CPT-88-3) was retained for chemical oxidation treatability studies.

#### 4.2.3 Soil Sampling

At each CPT logging location, a second DPT boring was advanced to the same depth as the previously collected groundwater samples to obtain soil samples using coring equipment. The coring equipment consisted of a 1-foot-long, nominal 1-inch-diameter core tube, with two 6-inch-long stainless steel liners. Soil samples were collected by pushing an En Core® sampler directly into the end of the soil filled core liners. A total of 136 soil samples were collected from 23 CPT/DPT boring locations. Not all soil sampling attempts were successful. Occasionally, the retrieved soil sample core barrel contained insufficient soil sample volume. A second attempt to collect a soil sample was made at intervals where the first attempt was unsuccessful. Intervals where soils could not be obtained are indicated with a “no recovery” note on the CPT logs (see Appendix E). Soil samples were analyzed for VOCs and TOC. Four soil samples were analyzed for microorganisms (two collected from location CPT-88-3 at the depth interval of 10 to 14 feet bgs and 46 to 48 feet bgs, and two collected from location CPT-88-19 at the depth interval of 6 to 9 feet bgs and 47 to 50 feet bgs).

#### 4.2.4 CPT/DPT Boring Backfilling and Location Survey

CPT lithologic borings, DPT groundwater sample borings, and DPT soil sample borings were backfilled immediately after completion. Each boring was backfilled with a Portland cement-benonite grout mixture pumped from the bottom of the boring using a tremie pipe in accordance with Santa Clara Valley Water District permit requirements. Boring permits are included in Appendix E. CPT/DPT borings located in paved areas were repaved to match the existing

surface. CPT horizontal and vertical coordinates were surveyed. Survey data for the CPT/DPT locations were included in Appendix C.

### 4.3 CPT ACTIVITY RESULTS

The CPT lithologic logs were correlated to field geologists logs (see Section 3.3.1) at locations with adjacent coreholes. Saturated zone PCE source areas were identified near Sump 66, the northern remedial excavation areas, and along the sewer alignment. Downgradient groundwater and soil PCE distribution were evaluated. CPT groundwater and soil analytical results are included in Tables 4-1 and 4-2. Activity results are summarized below.

#### 4.3.1 CPT Lithologic Log Correlation

Lithologic logs were produced for 23 CPT locations, which included five locations adjacent to continuous soil core borings. The CPT lithologic logs located adjacent to the continuous soil core borings were compared to the field geologist's lithologic logs of the continuous soil core borings (see Section 3.3.1). Fine-grained intervals reported on the field geologist's lithologic logs of the continuous soil core boring were consistently interpreted by the CPT lithologic log. Therefore, CPT lithologic logs are used for the interpretation of fine-grained lithology.

Coarse-grained intervals between 40 and 60 feet bgs were consistently reported by the field geologist and interpreted from the CPT lithologic log. The correlation of coarse-grained units was not as consistent above 40 feet bgs. For example, at location CPT-88-3 and boring CC-88-3, three intervals logged by the field geologist as fine sand and fine-to-coarse sand for the continuous soil core were interpreted as silt on the CPT lithologic log. The discrepancies in coarse-grained descriptions between the field geologist's continuous soil core logs and the CPT lithologic log could be due to formation changes over the short distance between the continuous core boring location and the CPT boring location. CPT borings were drilled about 8 feet from continuous soil core locations to avoid compromising the groundwater or soil sample integrity from the co-located DPT borings due to potential grout slurry infiltration. Discontinuity in coarse-grained soil, particularly between 20 and 40 feet bgs, is common throughout the Building 88 study area. Therefore, CPT lithologic logs are used for the interpretation of coarse-grained lithology.

A comparison of each of the field geologist's lithologic logs of the soil core boring to the corresponding CPT well pair is presented below. Lithologic symbols used below are based on the Unified Soil Classification System (USCS), as described in *Visual Classification of Soil* (Bureau of Reclamation, 1986) and the *2000 Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)* (American Society for Testing and Materials D2488-00). Lithology of CPT lithologic logs are not based on the USCS, thus a USCS lithologic symbol is not applied.

- CPT-88-1 was located about 8 feet south of continuous soil core boring CC-88-2 in the Sump 66 area. The geologic interpretations correlate well, with one exception. A sand and gravelly sand interval from 23 to 26 feet bgs interpreted on the CPT lithologic log is described by the field geologist as silt with sand (ML) on the continuous soil core lithologic log. However, the field geologist's description of the continuous core includes a 0.5-foot-thick fine-to-coarse sand with silty sand interval (SW-SM) from 26 to 26.5 feet bgs. The difference is likely due to a change in the depositional/erosional environment over the distance between the soil core and CPT boring.
- CPT-88-3 was located 8 feet southeast of continuous soil core boring CC-88-3 in the northern excavation area of the Building 88 footprint. Fine-grained geologic interpretations correlated well. However, the continuous soil core, logged by the field geologist as fine sand (SP) from approximately 14 to 15 feet bgs and 18 to 20 feet bgs, and as fine-to-coarse sand with gravel (SW) from 25 to 27 feet bgs, were interpreted as silt on the CPT lithologic log. Although these intervals were interpreted as silt on the CPT lithologic log, the three intervals had slightly elevated cone bearing readings and zero pore water pressure measurements (see the CPT data), which are usually indicators of more permeable soil, such as sand. The sandy soil (SW) between approximately 41 and 48 feet bgs appeared on both the field geologist's description of the continuous soil core and the CPT lithologic logs.
- CPT-88-6 was located 20 feet west of continuous soil core boring CC-88-1, hydraulically downgradient of the Building 88 footprint. The fine- and coarse-grained soils correlate well on both logs, with the following exceptions. Silty sand to sand and gravel (SM to SP), described by the field geologist in the continuous soil core between 13.5 and 16.5 feet bgs, 33 and 36 feet bgs, and 51 to 52.5 feet bgs, are interpreted as silt and clayey silt on the CPT lithologic logs. The distance between the CPT boring and continuous core location (20 feet apart) is the greatest of the five CPT/continuous soil core pairs. The difference is likely due to a change in the depositional/erosional environment over the distance between the soil core and CPT boring.
- CPT-88-9 was located 4 feet west of continuous soil core boring CC-88-5 in the southern remedial excavation area of the Building 88 footprint. No comparison is possible in the upper section of the borings, as a core was not recovered from 5 to 24 feet bgs. The initial 5-foot core (from 5 to 10 feet bgs) was plugged due to backfill/construction debris blocking the barrel. Within the 10- to 24-foot depth at CC-88-5, several options were attempted to increase core recovery, such as (1) changing the "sand catcher" at the end of the core barrel, (2) changing the core barrel length from 5 feet to 2.5 feet, and (3) loading the boring with water to prevent sand heave. These steps did not improve core recovery in this particular zone. CPT fine-grained soil correlates well on both lithologic logs. Two sand intervals from 42 to 44 feet bgs (SP) and 48 to 49 feet bgs (SW) were detected in both lithologic logs, showing a good correlation with respect to coarse-grained lithology below 40 feet bgs.

- CPT-88-10 was located 8 feet south of continuous soil core boring CC-88-4 in the Tank 68 area. The CPT and continuous soil core lithologic logs correlate well. A gravely sand interval from 23 to 26 feet bgs on the CPT lithologic log correlates to a zone of no recovery on the field geologist's continuous core lithologic log. A gravely sand interval (SW), beginning at 41 feet bgs, was recorded on both lithologic logs. The soil core from 42.5 to 49 feet bgs was not recovered and was estimated by the field geologist to be coarse-grained soil.

CPT logs were included in Appendix E.

#### 4.3.2 Groundwater and Soil Analytical Results

A summary of the groundwater VOC, anion, and cation analytical results were included in Table 4-1. A summary of the soil VOC and TOC results were included in Table 4-2. Laboratory analytical results reports were included in Appendix B. Groundwater and soil sample quality is described in Section 7.0.

Sample analytical results indicated the presence of two potential continuing PCE source areas (interpreted as soil PCE concentrations greater than 480 micrograms per kilograms [ $\mu\text{g/kg}$ ]). The U.S. Environmental Protection Agency (EPA) Region 9 residential soils Preliminary Remediation Goal (PRG) of 480  $\mu\text{g/kg}$  for PCE was used for the site screening value for soils. The residential soil PRG's role in site screening was to help identify areas that may require further attention. The residential soils PRG for PCE is slightly lower than the cleanup level identified in the Middlefield-Ellis-Whisman Record of Decision (soil remediation standard for PCE of 100 times the corresponding groundwater value of 5  $\mu\text{g/L}$  – 500  $\mu\text{g/kg}$ ). The two potential continuing source areas included along the sewer line in the traffic island area at the intersection of Wescoat Road and Cummins Avenue (locations CPT-88-13, CPT-88-23, and CPT-88-19), and the northern and eastern portion of the Building 88 footprint (locations CPT-88-1, CPT-88-3, and CPT-88-22) (see Figures 4-1 and 4-2). The maximum soil PCE concentration of 7,000  $\mu\text{g/kg}$  was detected in a soil sample from the DPT boring at location CPT-88-13 between 8 and 9 feet bgs. The maximum groundwater PCE concentration of 15,000 micrograms per liter ( $\mu\text{g/L}$ ) was detected in a groundwater sample from the DPT boring at location CPT-88-13 between 17 and 19 feet bgs. Potential source areas and contaminant distribution are described in Section 9.0.

Groundwater PCE concentrations in areas other than the Building 88 footprint and along the sewer alignment ranged from below the laboratory reporting limit of 0.5  $\mu\text{g/L}$  to an estimated concentration of 2,100  $\mu\text{g/L}$  in a groundwater sample from the DPT boring at location CPT-88-15 between 56 and 59 feet bgs, located about 25 feet hydraulically downgradient from the eastern portion of the Building 88 footprint. Soil PCE concentrations in areas other than the Building 88 footprint and along the sewer alignment ranged from below the laboratory reporting

limit of 6 µg/kg to 300 µg/kg in a soil sample from the DPT boring at location CPT-88-15 between 36.5 and 37.5 feet bgs. In areas other than the Building 88 footprint and along the sewer alignment, soil PCE concentrations were most often at, or less than, the laboratory reporting limit of 6 µg/kg. Contaminant distribution, fate, and transport are described in Section 9.0. Chemical oxidation treatability test results and biological treatability results are described in Section 10.0.

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## **5.0 GROUNDWATER MONITORING WELL INSTALLATION**

This section provides a summary of the objective, activities, and results of the installation of B2 aquifer zone groundwater monitoring wells.

### **5.1 GROUNDWATER MONITORING WELL INSTALLATION OBJECTIVE**

The objective of groundwater monitoring well installation was to determine if tetrachloroethene (PCE) concentrations impact the B2 aquifer zone. Evaluation of potential PCE impacts to the B2 aquifer zone was not an original Data Quality Objective, but was implemented because of PCE concentrations detected in a groundwater sample collected from the bottom of the A aquifer. Soil and groundwater PCE concentrations in the bottom samples (a depth of about 60 feet below ground surface [bgs]) from the direct push technology (DPT) boring at location CPT-88-13 (the traffic island at the intersection of Cummins Avenue, Wescoat Road, and Cody Road) were estimated at 2,700 micrograms per kilogram ( $\mu\text{g/kg}$ ) and 2,000 micrograms per liter ( $\mu\text{g/L}$ ), respectively.

### **5.2 GROUNDWATER MONITORING WELL INSTALLATION ACTIVITIES**

The activities associated with conducting groundwater monitoring well installation were the following:

- Geophysical survey for underground utilities, as required
- Drilling (using a sonic drill rig) to collect a continuous core
- Logging the core by a field geologist
- Soil sampling of select intervals for VOCs and total organic carbon (TOC) analysis
- Monitoring well construction
- Monitoring well development
- Site restoration and surveying

B2 aquifer zone monitoring well W88-1 was drilled and installed at location CPT-88-13 because of the detected PCE concentrations at 60 feet bgs (considered to be the bottom of the A aquifer), and the lack of a B2 aquifer zone monitoring wells located immediately downgradient of this location. Two additional B2 aquifer zone monitoring wells were installed generally hydraulically downgradient of location CPT-88-13, one located to the north of Hangar 1 (W88-2) and the other located in a parking lot on the northwest corner of Severyns Avenue and North Akron Road (W88-3) (Figure 5-1). The new B2 aquifer zone groundwater monitoring wells were installed between July 26 and August 3, 2005.

Lithologic symbols used in the following sections are based on the Unified Soils Classification System (USCS), as described in *Visual Classification of Soil* (Bureau of Reclamation, 1986) and the *2000 Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)* (American Society for Testing and Materials D2488-00). Lithology of cone penetrometer testing (CPT) lithologic logs are not based on the Unified Soil Classification System USCS; thus a USCS lithologic symbol is not applied.

### 5.2.1 Monitoring Well Drilling

A sonic drill rig was used to drill the borings for the three new B2 aquifer zone monitoring wells. For monitoring well W88-1, the backfilled CPT boring CPT-88-13 was over-drilled to the total depth of the CPT boring (60 feet bgs) using a nominal 9-inch-diameter drill pipe. The CPT lithologic log for location CPT-88-13 (see Appendix E) at 60 feet bgs showed a gravelly sand grading to a sandy silt (permeable material) at the bottom of the boring. The 9-inch drill pipe was advanced to 67 feet bgs. The soil core from 65 to 67 feet bgs was logged by the field geologist as a clay (CL) (see Appendix D). The soil core was logged by the same California Professional Geologist that logged the augered soil cores (see Section 3.0). In order to prevent potential drag-down of the overlying contaminated soils and groundwater, the bottom 5 feet of the drill pipe was filled with bentonite chips. The nominal 9-inch drill pipe was then pulled back 5 feet, and the bentonite chips were allowed to hydrate for 60 minutes. The nominal 9-inch drill pipe was then pushed ahead to a depth of 68 feet bgs (1 foot ahead of the previous open borehole). This procedure smeared bentonite on the outside of the nominal 9-inch drill pipe and seated the drill pipe into the undisturbed soils. The inside of the nominal 9-inch drill pipe was cleaned out of soil and groundwater, and drilling proceeded using a nominal 8-inch drill pipe. Drilling and lithologic logging proceeded to select the appropriate depth for setting the well screen. Soil samples for the lower portion of the borings for the new B2 aquifer zone monitoring wells were collected from the roto sonic continuous core. Intervals of potential interest were collected into plastic bag and placed on ice. The material collected ranged in intervals of core from 0.5 foot to 2.5 feet. Latter, after logging, sample intervals were selected for analysis. An En Core<sup>®</sup> sampler was then pushed into the soils within the bag to collect the sample analysis. Soil samples were collected from the soil core at depths of 70 to 70.5 feet bgs and at 73 to 73.5 feet bgs. Drilling was terminated at a total depth of 97 feet bgs. The boring log was provided in Appendix D. Soil sample analytical results are included in Table 5-1.

For monitoring well W88-2, the decommissioned CPT boring WO-CPT2 (used to locate extraction well EA2-3 [see Appendix E for CPT lithologic log]) was over-drilled to the total depth of the CPT boring (65 feet bgs) using nominal 9-inch-diameter drill pipe. The CPT lithologic log for location WO-CPT2 at 62 to 64 feet bgs showed a clay soil. The 9-inch drill pipe was advanced to 62 feet bgs. In order to prevent the drag-down of the overlying potentially

contaminated soils and groundwater, the same step-down casing procedures were followed as described previously for drilling of the boring for monitoring well W88-1. A soil sample was collected from the soil core as described previously for soil sampling at monitoring well W88-1 at a depth of 77 to 79.5 feet bgs. Drilling was terminated at a total depth of 97 feet bgs. The boring lithologic log is provided in Appendix D. Soil sample analytical results are included in Table 5-1.

For monitoring well W88-3, the boring was continuously logged from land surface, since there was no CPT lithologic log at this location. A 9-inch drill pipe was advanced to 62 feet bgs, where a clay (CL) soil was encountered. In order to prevent the drag-down of the overlying potentially contaminated soils and groundwater, the same step-down casing procedures were followed as described previously for drilling of the borings for monitoring wells W88-1 and W88-2. Soil samples were collected from the soil core as described previously for soil sampling at monitoring well W88-1 at depths of 62 to 64 feet bgs and at 86 to 87 feet bgs. Drilling was terminated at a total depth of 97 feet bgs. The boring lithologic log is provided in Appendix D. Soil sample analytical results are included in Table 5-1.

## **5.2.2 Monitoring Well Construction**

Monitoring well W88-1 was constructed inside the drill pipe. For monitoring well W88-1, the bottom of the borehole from 84 to 97 feet bgs was backfilled with bentonite chips, as the nominal 8-inch drill pipe was withdrawn. A 10-foot-long, nominal 4-inch-diameter, 10-slot (0.01-inch), wire-wrapped, stainless steel well screen was set between the depths of 72 and 82 feet bgs (the depth interval with the most permeable soils – see boring lithologic log in Appendix D). Centralizers were placed below and above the well screen. A nominal 4-inch-diameter stainless-steel riser pipe was used to complete the well to the surface. A third centralizer was placed at a depth of about 50 feet bgs on the riser pipe. Filter material (#2/16 sand) was tremied around the screen interval, and 1.7 feet below and 2 feet above the screen, as the nominal 8-inch drill pipe was withdrawn. A 5-foot-thick bentonite seal was placed above the filter material, as the nominal 8-inch drill pipe was withdrawn. The nominal 8-inch drill pipe was completely removed from the boring. Then the nominal 9-inch drill pipe was pulled a couple of feet, allowing groundwater to hydrate the bentonite seal for 1 hour. Cement-bentonite grout was used to fill the remainder of the annular space to land surface, as the nominal 9-inch drill pipe was withdrawn. The surface completion was a flush-mounted, traffic-rated protective cover. A detailed monitoring well construction figure is provided on the well log in Appendix D.

Monitoring well W88-2 was constructed inside the drill pipe. For monitoring well W88-2, the bottom of the borehole from 89 to 97 feet bgs was backfilled with bentonite chips, as the nominal 8-inch drill pipe was withdrawn. A 10-foot-long well screen, similar to the well screen set in monitoring well W88-1, was set between the depths of 77 and 87 feet bgs (the depth interval with the most permeable soils – see boring lithologic log in Appendix D). The remainder of the

construction for monitoring well W88-2 was similar to the construction for monitoring well W88-1. A detailed monitoring well construction figure is provided on the well log in Appendix D.

Monitoring well W88-3 was constructed inside the drill pipe. For monitoring well W88-3, the bottom of the borehole from 89 to 97 feet bgs was backfilled with bentonite chips, as the nominal 8-inch drill pipe was withdrawn. A 10-foot-long well screen was set between the depths of 79 and 89 feet bgs (the depth interval with the most permeable soils – see boring lithologic log in Appendix D). The remainder of the construction for monitoring well W88-3 was similar to the construction for monitoring well W88-1. A detailed monitoring well construction figure is provided on the well log in Appendix D.

### **5.2.3 Monitoring Well Development**

The new B2 aquifer zone monitoring wells were developed between August 15 and 16, 2005. The monitoring wells were initially bailed to clean out any material in the bottom of the well screen using a bottom-suction bailer. Then the well screen interval was surged with a surge block. Accumulated material was removed by bailer. Finally, a submersible pump was installed just above the screen interval and the well was pumped. This surging, bailing, and pumping cycle was repeated as necessary until the field parameters stabilized, as follows:

- No visible change in the appearance of discharge water, or turbidity stabilized to less than 50 nephelometric turbidity units
- Temperature was within  $\pm 1$  degree Celsius for consecutive readings
- Conductivity was within  $\pm 5$  percent micromhos per centimeter for consecutive readings
- pH was within  $\pm 0.2$  units for consecutive readings

Well development logs for the new B2 aquifer zone monitoring wells are provided in Appendix D.

## **5.3 MONITORING WELL INSTALLATION RESULTS**

It was intended to install monitoring wells W88-1, W88-2, and W88-3 into the top of the B2 aquifer zone. All three groundwater monitoring wells were completed in permeable materials below clay or clayey layers beneath the assumed base of the A aquifer. However, a clear boundary between the A aquifer and the B2 aquifer zone has not been defined. Monitoring wells W88-1, W88-2, and W88-3 are screened in permeable soils about 10 feet higher in elevation than the other local B2 aquifer zone monitoring wells (51B2, W9-12, W9-15, 123B2, and W9-11). Based on a comparison of groundwater sample results (see Sections 4.0 and 6.0) and groundwater elevation data from the new monitoring wells and the 2004 annual sampling event (Tetra Tech FW, Inc., 2005b), it is possible to draw the following conclusions:

- Monitoring well W88-1 was completed in an area of high PCE concentrations (2,000 µg/L), high concentrations of trichloroethene (TCE) (estimated at 1,100 µg/L), and low concentrations of cis-1,2-dichloroethene (cis-1,2-DCE) (9.5 µg/L) at the bottom of the A aquifer at CPT/DPT-88-13 (see Table 4-1). The groundwater sample collected from monitoring well W88-1 in August 2005, contained low concentrations of PCE (69 µg/L), TCE (estimated at 20 µg/L), and high concentrations of cis-1,2-DCE (10,000 µg/L). The significant difference in chemical concentration suggests hydraulic isolation from the overlying A aquifer. Monitoring well W88-1 water level data were compared to water level data from nearby lower A aquifer monitoring well W9-42. Water levels differed by nearly 3 feet.

Based on the W88-1 completion depth, the difference in chemical concentrations for the sample collected from W88-1 and the HydroPunch® sample collected from the bottom of the A aquifer at CPT/DPT-88-13, and the difference in water levels, monitoring well W88-1 was completed in the B2 aquifer zone.

- Monitoring well W88-2 was completed in an area of low concentrations of TCE and cis-1,2-DCE (each less than 10 µg/L) in the lower A aquifer. The groundwater sample from monitoring well W88-2 contained low concentrations of TCE (7.2 µg/L) and cis-1,2-DCE (estimated at 0.28 µg/L). The similarity in the TCE and cis-1,2-DCE concentrations in the lower A aquifer and in the groundwater sample from well W88-2 does not distinguish the completion zone. Monitoring well W88-2 water level data were compared to water level data from nearby lower A aquifer monitoring wells and B2 aquifer zone monitoring wells. Water level data comparison does not distinguish the completion zone for well W88-2.

Based on well completion depth, it is assumed that monitoring well W88-2 was completed in the B2 aquifer zone.

- Monitoring well W88-3 was completed in an area of high concentrations of TCE (greater than 1,000 µg/L) and moderate concentrations of cis-1,2-DCE (greater than 100 µg/L) in the lower A aquifer. The groundwater sample from monitoring well W88-3 contained low concentrations of TCE (7.3 µg/L) and cis-1,2-DCE (5.3 µg/L). Monitoring well W88-3 water level data were compared to water level data from nearby lower A aquifer monitoring wells and B2 aquifer zone monitoring wells. Water level data comparison does not distinguish the completion zone for well W88-3.

Based on well completion depth and the significant differences in the TCE and cis-1,2-DCE concentrations in the lower A aquifer and in groundwater sample from well W88-3, monitoring well W88-3 was completed in the B2 aquifer zone.

Newly installed monitoring wells MW88-1, MW88-2, and MW88-3 are considered to be completed in the B2 aquifer zone.

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## 6.0 GROUNDWATER MONITORING WELL SAMPLING

This section provides a summary of the objective, activities, and results of activities associated with groundwater monitoring well sampling.

### 6.1 MONITORING WELL SAMPLING OBJECTIVES

The objective of the sampling at existing groundwater monitoring wells located downgradient of the former Building 88 was to answer Data Quality Objective Decision Question No.1 in the Sampling and Analysis Plan to the *Final West-Side Aquifers Treatment System [WATS] Optimization Work Plan Addendum 1* (Tetra Tech FW, Inc. [TtFW], 2005a): Is tetrachloroethene (PCE) detected above action levels for groundwater samples hydraulically downgradient of the potential source area? Specific targets were:

- Evaluate PCE concentration and distribution.
- Evaluate biological bait traps ([biotrap] a passive in-well biological growth medium) for substrate screening to support remedial alternative analysis.

### 6.2 MONITORING WELL SAMPLING FIELD ACTIVITIES

Activities associated with monitoring well sampling included the following:

- Purging select monitoring wells
- Collecting groundwater samples for volatile organic compound (VOC), anion, and cation analyses
- Installing and collecting biotrap

Eighteen groundwater monitoring wells were sampled in accordance with the *Final West-Side Aquifers Treatment System Optimization Work Plan Addendum 1* (TtFW, 2005a) and a field change, based on PCE concentrations detected at the total depth investigated in the traffic island. Monitoring well locations are shown on Figure 6-1. Sampled wells included 14D29A, 14D30A, W1C-1, W29-3, W29-4, W9-23, W9-46, and W9-6, screened in the upper portion of the A aquifer; W9-20, W9SC-15, and W9SC-3 screened in the lower portion of the A aquifer; and 51B2, W9-11, W9-12, W9-15, W88-1, W88-2, and W88-3 screened in the B2 aquifer zone.

#### 6.2.1 Monitoring Well Purging and Sampling

Groundwater monitoring wells were purged and sampled on April 27 and 28, 2005, except for W88-1, W88-2, and W88-3, which were purged and sampled on August 22, 2005. The PCE concentrations in samples collected from groundwater monitoring wells in April and August

2005, are shown on Figure 6-2. Groundwater monitoring wells W88-1, W88-2, W88-3, W9-12, and W9-15 were purged and sampled again on December 6 and 9, 2005.

The depth to groundwater in all monitoring wells was less than 15 feet below ground surface (bgs) allowing the use of a peristaltic pump for purging and sampling. Wells were purged by slowly lowering new high-density polyethylene (HDPE) tubing into the well to the midpoint of the screen interval, attaching the HDPE tubing to a peristaltic pump, and pumping at a low flow rate of approximately 0.2 to 0.5 liters per minute (L/min). Temperature, pH, turbidity, specific electrical conductance, oxidation-reduction potential, and dissolved oxygen were monitored approximately every 3 to 5 minutes during purging. Purging continued until indicator parameters stabilized. Flow rates were reduced to 0.1 and 0.2 L/min prior to filling volatile organic analysis vials. Field sampling data sheets are provided in Appendix F.

### **6.2.2 Biotrap Installation and Sampling**

Biological traps (biotrap) were installed in monitoring wells W9-29 and W9-46 on April 29, 2005. The biotrap were suspended within the wells in the middle of the screened interval on monofilament nylon fishing line, which was secured at the top of the well. The biotrap were approximately 2 centimeters (cm) in diameter and 10 cm long. The biotrap were baited (impregnated) with various substrates, which are commonly used to stimulate reductive dechlorination to assess the response of the in situ microbial community to a particular substrate. Analysis of preliminary substrate screening provided information regarding preferred substrate(s) on a site-specific basis, which can be used in evaluating enhanced in situ bioremediation as a remedial technique. The biotrap were installed May 31, 2005, removed 30 days later, and sent to a laboratory for analysis.

## **6.3 MONITORING WELL SAMPLING ACTIVITY RESULTS**

The results of groundwater monitoring well sampling were used to evaluate PCE distribution in the upper portion of the A aquifer, lower portion of the A aquifer, and the B2 aquifer zone hydraulically downgradient (to the north) of the former Building 88. Groundwater monitoring well samples were analyzed for VOCs, anions, and cations. Groundwater analytical results are presented in Table 6-1. Biotrap sampling results were used to evaluate potential environmental response actions. Biotrap sampling results are described in Section 10.4.

PCE concentrations for groundwater samples collected in April 2005 from the upper A aquifer monitoring wells (14D29A, WIC-1, W29-3, W29-4, and W9-46) were compared to PCE results from the December 2004 annual groundwater sampling event (TtFW, 2005b) in Table 6-2. The April 2005 PCE concentrations in groundwater samples collected from 14D29A, WIC-1, W29-3, W29-4, and W9-46 were generally consistent with the December 2004 PCE concentrations. Upper A aquifer PCE isoconcentration contours based on the December 2004 analytical results are shown on Figure 6-3. The PCE concentrations in extraction wells were not used in the



contouring process since they are not representative of the extraction well location, but rather of the area of groundwater captured by the extraction well. The PCE concentrations for groundwater samples collected in April 2005 from the upper A aquifer monitoring wells 14D30A, W9-23, and W9-6 (which were not sampled in December 2004) were consistent with the interpreted December 2004 PCE isoconcentration contours.

PCE concentrations for the lower A aquifer monitoring wells (W9-20, W9SC-15, and W9SC-3) were compared to PCE results from the December 2004 WATS annual sampling event (TtFW, 2005b) in Table 6-3. All the April 2005 lower A aquifer PCE concentrations were consistent with the interpreted December 2004 PCE isoconcentration contours. Lower A aquifer PCE isoconcentration contours based on the December 2004 analytical results are shown on Figure 6-4. The PCE concentrations in extraction wells were not used in the contouring process since they are not representative of the extraction well location, but rather of the area of groundwater captured by the extraction well.

Groundwater samples collected from four B2 aquifer zone monitoring wells (51B2 and W9-11 in April 2005, and W88-1 and W88-2 in August 2005) contained PCE at concentrations at 69 ug/L, an estimated 0.17 ug/L, an estimated 0.31 ug/L, and an estimated 0.17 ug/L, respectively. Groundwater samples collected from three other B2 aquifer zone wells (W9-12 and W9-15 in April 2005, and W88-3 in August 2005) did not contain PCE at concentrations greater than the laboratory reporting limit. A groundwater sample collected from B2 aquifer zone monitoring well W88-1 in December 2005 contained PCE at a concentration of 6 ug/L. Groundwater samples collected from four other B2 aquifer zone wells (W9-12, W9-15, W88-2, and W88-3 in December 2005) did not contain PCE at concentrations greater than the laboratory reporting limit. The August 2005 groundwater sample collected from W88-1 was obtained shortly after well construction. The PCE concentration in the groundwater sample collected from W88-1 in August 2005 appears to be impacted by drag-down during well construction. There appears to be de minimus PCE impacting the B2 aquifer.

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## 7.0 QUALITY ASSURANCE AND QUALITY CONTROL

Soil and water samples were analyzed by a state of California-certified and Navy-evaluated laboratory. Soil gas samples were analyzed in the field by a mobile laboratory. A third-party validation company performed data validation of all samples, except for soil gas samples, which were analyzed by a mobile laboratory and do not require validation. The validation was conducted in accordance with the U.S. Environmental Protection Agency (EPA) Contract Laboratory Program *National Functional Guidelines For Organic Data Review* (EPA, 1999), the Contract Laboratory Program *National Functional Guidelines for Inorganic Data Review* (EPA, 2004a), the Department of Defense (DoD) *Quality Systems Manual for Environmental Laboratories* (DoD, 2002), and the criteria specified in the *Final West-Side Aquifers Treatment System Optimization Work Plan*, Sampling and Analysis Plan (Foster Wheeler Environmental Corporation [FWENC], 2003) and Sampling and Analysis Plan Addendum of the *Final West-Side Aquifers Treatment System Optimization Work Plan Addendum 1* (Tetra Tech FW, Inc. [TiFW], 2005a). Twenty percent of the samples were validated in accordance with an EPA Level IV-equivalent protocol, and the remainder of the samples were validated in accordance with an EPA Level III-equivalent protocol. The chain-of-custody records, laboratory reports, and data validation reports for Building 88 were included in Appendix B. A detailed quality assurance (QA) and quality control (QC) description for the field sampling and laboratory analysis is included in Appendix G.

### 7.1 FIELD QUALITY CONTROL SAMPLING OBJECTIVES

Ninety-six field QC samples were collected. Field QC sampling objectives were met per the *Final West-Side Aquifers Treatment System Optimization Work Plan*, Sampling and Analysis Plan (FWENC, 2003). The following sections describe the results of the field QC sampling for the Building 88 sampling.

#### 7.1.1 Field Duplicates

Field duplicates were collected at a frequency of 1 per every 10 samples and were analyzed for the same parameters as the original sample. Field duplicates were not required for soil samples due to matrix heterogeneity.

Three field duplicates were collected for soil gas samples. All relative percent difference (RPD) values for gas samples were less than 25 percent, which was considered acceptable (FWENC, 2003).

Twenty-three groundwater field duplicates were collected. Generally the RPD values for the volatile organic compound (VOC), anion, and cation analyses could not be calculated (due to pairs with non-detect results) or were greater than 25 percent. Samples with greater than 25

percent RPD were likely the result of high sediment content typical of the HydroPunch® sampling method. Results were qualified with a “J” (estimated) as a result of field duplicate RPDs outside of QC limits.

### 7.1.2 Trip Blanks

Thirty-one trip blank samples were transported with the samples to the laboratory and analyzed for VOCs. Acetone was detected in several trip blanks and in some of the samples shipped with the trip blanks. Methylene chloride was detected in several trip blanks but was not detected in the samples shipped with the trip blanks. Acetone and methylene chloride are common laboratory contaminants. Acetone and methylene chloride were detected in most of the associated method blanks, and therefore, are suspected to come from the laboratory environment. Tetrachloroethene (PCE) and trichloroethene (TCE) were detected in two trip blanks. Samples that traveled in the cooler with affected trip blanks were qualified as estimated when analyte concentrations were less than five times (for non-common laboratory contaminants) or ten times (for common laboratory contaminants) the reported concentrations in the trip blank. A detailed discussion is provided in Appendix G.

### 7.1.3 Matrix Spike and Matrix Spike Duplicate

One matrix spike and matrix spike duplicate (MS/MSD) sample was collected for every 20 soil or groundwater samples. Ten MS/MSD samples were collected for the soil matrix, and 11 were collected for the water matrix. The percent recoveries and RPDs were within the specified QC limits described in the *Final West-Side Aquifers Treatment System Optimization Work Plan*, Sampling and Analysis Plan (FWENC, 2003) and *Final West-Side Aquifers Treatment System Optimization Work Plan Addendum 1* (TtFW, 2005a) for most samples. Samples were flagged “J/UJ” (estimated value) for the analytes outside the required limits. A detailed discussion is provided in Appendix G.

### 7.1.4 Equipment Rinsate

One rinsate was collected each day during Building 88 sampling, when disposable sampling equipment was not used. No analytes were reported at or above laboratory reporting limits in the equipment rinsate samples, except for total organic carbon (TOC). Results are not usually qualified based on field QC samples, such as equipment rinsates. Data were only qualified when the parameters were outside the QC limits. Therefore, no associated samples were qualified.

## 7.2 ANALYTICAL LABORATORY DATA QA/QC

The following sections describe the fulfillment of the analytical Data Quality Objectives for the Building 88 sampling, as described in the *Final West-Side Aquifers Treatment System Optimization Work Plan*, Sampling and Analysis Plan (FWENC, 2003) and *Final West-Side Aquifers Treatment System Optimization Work Plan Addendum 1* (TtFW, 2005a).

### 7.2.1 Holding Times

The direct push technology (DPT) groundwater sample collected from location CPT-88-19 at 47 to 50 feet below ground surface (bgs) did not meet holding time. Nitrate and nitrite analysis have a holding time of 48 hours, and the sample was analyzed 12 days after sample collection date due to laboratory error. For this sample, nitrate was flagged as estimated, and nitrite was flagged with an “R” (rejected) qualifier. A field duplicate groundwater sample collected from location CPT-88-19 at 47 to 50 feet bgs was analyzed within the required holding time. All other samples met holding times.

### 7.2.2 Method Blanks

Some method blanks for VOC, anion, and TOC analyses contained one or more of the following analytes - acetone, methylene chloride, cis-1,2-dichloroethene (cis-1,2-DCE), TCE, PCE, nitrite, and/or TOC. Acetone and methylene chloride were flagged “U” (less than the laboratory reporting limit) for the associated samples, if compounds were not detected above the laboratory reporting limit or if the compound concentrations were not greater than 10 times the concentrations found in the associated method blank. Cis-1,2-DCE, TCE, PCE, nitrite, and TOC were flagged as less than the laboratory reporting limit for associated samples, if compounds were not detected above the laboratory reporting limit or if the compound concentrations were not greater than five times the concentrations found in the associated method blank. Select samples were flagged as less than the laboratory reporting limit as a result of compounds found in associated method blanks. A detailed discussion is provided in Appendix G.

### 7.2.3 Surrogate Percent Recovery

The surrogate percent recoveries were outside QC limits for the groundwater samples collected from the following locations depths: CPT-88-8 at 32 to 34 feet bgs; CPT-88-23 at 18.5 to 20.5 feet bgs, 22 to 24 feet bgs, 26.5 to 28.5 feet bgs, and 30 to 32 feet bgs; and the groundwater samples (diluted for analysis) collected from monitoring wells 14D29A, 14D30A, 14D30A (field duplicate), W1C-1, W29-3 (field duplicate), W29-4, W9-6, W9-20, W9-23, W9-46, and W9SC-3. Groundwater sample dilution was required because TCE and/or cis-1,2-DCE concentrations were above the calibration range. The analytical results were flagged as estimated for all affected compounds. All other surrogate percent recoveries were within QC limits.

There were 133 DPT depth-specific groundwater samples collected. Five of these samples were outside QC limits for surrogate percent recovery – which results in 4 percent not within QC limits for the DPT groundwater samples. There were 21 groundwater samples collected (some of which were duplicates). Eleven of these samples were outside QC limits for surrogate percent recovery – which results in 50 percent not being within QC limits for the monitoring well groundwater samples. The laboratory was being overloaded with water, soils, and reanalysis samples during that time. The dilution sample was being analyzed on the last day of the holding time being out. The laboratory made a judgment call to not reanalyze these samples, since they

would be qualified anyway for being outside the holding time. The data are usable, but have been qualified as estimated, as stated in the QC report.

#### **7.2.4 Laboratory Control Samples**

All laboratory control samples were within QC limits.

#### **7.2.5 Internal Standards**

The internal standards and retention times were outside QC limits for soil samples collected from the following locations/depths: boring CC-8-3 at 9.5 to 10 feet bgs; boring CC-88-3 at 14 to 14.5 feet bgs; the DPT boring at location CPT-88-1 at 12.5 to 13.5 feet bgs; the DPT boring at location CPT-88-10 at 10.5 to 11.5 feet bgs; the DPT boring at location CPT-88-19 at 6 to 7 feet bgs and 11.5 to 12.5 feet bgs; the DPT boring at location CPT-88-22 at 12 to 13 feet bgs; and the DPT boring at location CPT-88-23 at 11 to 12 feet bgs, 16 to 17 feet bgs, 23 to 24 feet bgs, and 32 to 33 feet bgs. These samples were flagged as estimated values for compounds 4-methyl-2-pentanone and 1,1,2,2-tetrachloroethane. All other internal standards and retention times were within QC limits.

#### **7.2.6 Target Compound Identifications**

All target analytes were correctly identified.

#### **7.2.7 Compound Quantitation**

Nitrates and some VOCs were reported incorrectly by the laboratory. Corrective action was implemented, and amended reports were submitted. Amended report pages are included in Appendix B.

#### **7.2.8 System Performance**

System performance met all QC requirements.

#### **7.2.9 Completeness**

The HydroPunch<sup>®</sup> groundwater sample from the DPT boring at location CPT-88-19 at 47 to 50 feet bgs did not meet the holding time requirements for nitrate and nitrite. Nitrite was flagged “R” for rejected. The percent completeness for soil is 100 percent and 99 percent for water.

### **7.3 OVERALL ASSESSMENT OF DATA**

Overall, the quality of data collected from the Building 88 sampling is valid and usable. Most of the soil and groundwater samples for VOC analysis had high concentrations of cis-1,2-DCE, PCE, and TCE, requiring samples to be diluted. There was a large disparity in the calculated results of diluted and undiluted analyses for soil and HydroPunch<sup>®</sup> groundwater samples.

A combination of factors, including heterogeneity of the soil composition, internal standard recovery, matrix interference, and/or dilution factors could account for the disparity in calculated results. The higher of the two VOC concentrations (undiluted or diluted) from the soil and HydroPunch® groundwater samples was used for evaluation in this report to be conservative. VOC concentrations from undiluted and diluted analysis for the groundwater monitoring well samples exhibited no significant variability between different dilutions; therefore, the concentrations from higher dilution analysis was reported. Sulfate and metals analysis also required dilutions. However, only the diluted concentrations were reported because there was no significant variability identified for the two analyses.

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## 8.0 GEOLOGY AND HYDROGEOLOGY

This section provides an update of the reported geologic and hydrogeologic conditions in the *West-Side Aquifers Treatment System [WATS] Optimization Completion Report* (Tetra Tech FW, Inc. [TiFW], 2005c) using the geologic and geochemical data gathered during the Building 88 investigation. The Building 88 investigation area focused on the southern portion of the WATS area, but included some limited data throughout the WATS area. The WATS area is generally bounded by Hangar 1 to the east, McCord Avenue to the west, King Road to the north, and a line approximately 300 feet south of Wescoat Road to the south.

### 8.1 GEOLOGIC ENVIRONMENT

Regionally, the northwesterly trending Santa Clara Valley Basin contains interbedded alluvial, fluvial, and estuarine deposits to a depth of as much as 1,500 feet (Iwamura, 1980). Soils consist of varying combinations of clay, silt, sand, and gravel that represent the interfingering of estuarine and alluvial depositional environments during the late Pleistocene and the Holocene epochs. The fluvial soils were derived from the Santa Cruz highlands west of the basin and deposited on an alluvial plain bounded by alluvial fan deposits to the west and baylands to the northeast (Iwamura, 1980). In general, thicker intervals of sand and gravel and discontinuous intervals of clays and silt are found proximal to the upper alluvial fan deposits. The sand and gravel intervals are thin, and clay and silt intervals become thicker and laterally continuous close to the axis of the basin and distal from the fan deposits.

### 8.2 LOCAL GEOLOGY

The Building 88 investigation area subsurface is characterized by interbedded sand, silt, and clay deposits. The following descriptions are based on the continuous soil core boring logs and direct push technology (DPT) soil core. Lithologic symbols are based on the Unified Soil Classification System (USCS), as described in *Visual Classification of Soil* (Bureau of Reclamation, 1986) and the *2000 Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)* (American Society for Testing and Materials D2488-00). Color has been coded using the *Munsell Soil Color Charts* (Gretag Macbeth, 1990 revised edition).

Sand soils ranged from fine sand with silt to medium and coarse, subrounded to subangular sand with fine subangular gravel. Sand was often dark brown (10YR 4/3) or dark grayish-brown (2.5Y 4/2) in color. Sand soil thickness ranged from approximately 6 inches (SW-SM) in boring CC-88-2 at a depth interval of 26 to 26.5 feet below ground surface [bgs]) to approximately 7 feet

(soil sample from the DPT boring at location cone penetrometer testing CPT-88-1 at a depth interval of 29 to 36 feet bgs).

Silt soils ranged from fines with low to medium plasticity, to non-plastic fines with fine to medium sand. The low to medium plasticity observed in some silt soils was an indication of some clay content. Silt color ranged from variations of gray (5Y 5/1) and brown (10YR 5/3) to very dark gray (2.5Y 4/N). Groundwater was not always observable in silt soils with low plasticity with two exceptions; groundwater was observed in fine sand-filled fractures (possibly root casts) in soil samples from borings CC-88-3, CC-88-4, and CC-88-5 at approximately 36 to 37 feet bgs (see Appendix A, Photograph A9). Silt soil thickness range from 6 inches (ML in boring CC-88-1 at a depth interval of 5.5 to 6 feet bgs) to 12 feet (ML in boring CC-88-2 at a depth interval of 32 to 44 feet bgs).

Clay soils contained fines with high plasticity and fine to medium sand and occasionally with a trace amount of gravel. Clay soils were often dense and massive, up to 9.5 feet thick (CL in boring CC-88-2 at a depth interval of 1 to 11 feet bgs). Near the surface to approximately 20 feet bgs, clay was often dark grayish-brown (10YR 4/2) to black (2.5Y N2/). Clay soils often included intervals of subangular calcareous nodules ranging in size from coarse sand to fine gravel from near ground surface to total depth. The intervals of calcareous nodules were found in lighter colored soil, usually grayish-brown (10YR 5/2), within a darker clay soil. Groundwater was not observed in clay samples.

### 8.3 LOCAL HYDROSTRATIGRAPHY

Within the vicinity of WATS, the depositional environment was fluvial, characterized by north-trending anastomosing channels and discontinuous finer-grained interchannel and overbank deposits (TiFW, 2005a). The channels generally trend northwest to southeast, becoming more northerly in the vicinity of WATS. Thicker more continuous channels of sands and gravels trending northwest to southeast exist south of Highway 101, as discussed by Iwamura (1995). In order to better understand the subsurface conditions beneath and hydraulically downgradient of the Building 88 area, lithologic data obtained from the core and CPT borings were correlated. A series of hydrostratigraphic cross sections and a fence diagram were constructed to better understand the subsurface relationships of the interbedded permeable (coarse-grained) soil and non-permeable (fine-grained) soil layers (Figure 8-1). Cross sections A-A' through C-C' are included as Plate 8-1. The fence diagram is included as Plate 8-2. Coarse-grained soil distribution maps were generated based on the cross section correlations, combined with additional data from the *West-Side Aquifers Treatment System Optimization Completion Report* (TiFW, 2005c) and boring logs from adjacent groundwater monitoring wells. These maps are included as Figures 8-2 through 8-5. The coarse-grained soil distribution plots have been used to evaluate preferred pathways of dissolved phase chemical transport in the A aquifer. This

information was used for the construction of the isoconcentration plots of tetrachloroethene (PCE) in the upper and lower portion of the A aquifer.

The cross sections and fence diagram were constructed using subsurface lithologic data from the 23 CPT borings. These data were translated to Unified Soils Classification System (USCS) codes (Table 8-1), and input manually into Rockworks™ 2004, an integrated geological visualization software package. Once the data were entered into the program, a 3-dimensional lithology solid model was generated. The three-dimensional lithology model uses a proprietary horizontal lithoblending algorithm that assigns each model node (in this case, the XYZ dimensions were set to 15 feet by 15 feet by 0.25 feet) a lithology value (such as clay) starting at the nodes closest to the boreholes and expanding in ever-widening circles until a different lithology value is encountered (such as silt). The resulting lithology model was then viewed in three-dimensional space to ensure applicability of the modeling algorithm in keeping with the interpreted fluvial environment of deposition. The resultant channel morphology and overbank occurrences (discontinuous clays and silts) as depicted in the model were determined to be an adequate representation of fluvial environments of deposition. The cross sections represent slices through the solid model and illustrate the geology and hydrostratigraphy at the Building 88 area. The fence diagram composites the three cross sections shown on Figure 8-1.

The subsurface beneath the Building 88 investigation area is characterized by interbedded coarse-grained soil (sands and gravels) and fine-grained soil (silts and clays). Distribution of coarse- and fine-grained soil differ based on location and depth. The coarse-grained soil, where continuous, trends generally north-south and is consistent with the regional interpretation.

Cross section A-A' is oriented west-east, looking toward the north, extending from the Building 88 footprint toward the intersection of Wescoat Road and Cummins Avenue (traffic island), and is orthogonal to the north-south regional depositional trend (see Plate 8-1). As shown in cross section A-A', there appears to be no continuous coarse-grained soil from the Building 88 footprint east to the traffic island. The coarse-grained intervals are thicker and more prevalent toward the east (traffic island). Cross section B-B' is oriented northwest-southeast, looking toward the northeast, extending from the northernmost CPT location (CPT 88-12) along the Cummins Avenue sewer alignment to the traffic island. Cross section B-B' illustrates the apparent lack of continuous coarse-grained soil from the traffic island area to the north along the Cummins Avenue sewer alignment (between CPT-88-13 and CPT-88-19). Cross section C-C' is also oriented northwest-southeast, looking toward the northeast, from CPT-88-11 to the vicinity of the Building 88 area and is located to the west and roughly parallel to cross section B-B'. Only one coarse-grained interval (at approximately -22 to -24 feet mean sea level) shows lateral continuity between CPT 88-11 to the north and the Building 88 area to the south.

The upper 17 feet of the investigation area contains mostly fine-grained soil, with isolated native coarse-grained deposits. Anastomosing coarse-grained soil channels are observed from approximately 20 feet to approximately 32 feet bgs, and are interbedded with fine-grained overbank deposits (see Figures 8-2 and 8-3). These channels are observed at depth intervals of approximately 20 to 25 feet bgs and 29 to 32 feet bgs, and are encased in fine-grained soil. The channels are depicted as continuous, but based on the cross sections and fence diagram (see Plates 8-1 and 8-2) these channels can also be interpreted as a series of laterally and vertically interconnected segments of channels. The depicted locations of the channels in the areas of the WATS extraction wells EA1-1, EA1-2, and EA1-3 are consistent with historic pumping rates from those wells (TtFW, 2005b). The thickness of the channels varies spatially, but averages approximately 2 feet. Based on the cross sections and fence diagram (see Plates 8-1 and 8-2), there appears to be little to no single coarse-grained layer vertically connecting these two intervals. However, based on water levels shown in the upper portion of the A aquifer in December 2004 in the area of WATS extraction well EA2-2 (TtFW, 2005b), there is hydraulic communication between the lower portion of the A aquifer and the upper portion of the A aquifer.

Two relatively continuous channel deposits of coarse-grained soil are observed from approximately 40 to 46 feet bgs and 45 to 52 feet bgs in the western portion of the study area (see Figures 8-4 and 8-5). The channels are depicted as continuous, but based on the cross sections and fence diagram (see Plates 8-1 and 8-2) these channels can also be interpreted as a series of laterally and vertically interconnected segments of channels. The depicted locations of the channels in the area of the WATS extraction wells EA2-1 and EA2-2 are consistent with historic pumping rates from those wells (TtFW, 2005b). The deposits range in thickness from approximately 1 to 6 feet, and are separated by approximately 1 to 4 feet of silt. Based on water levels shown in the upper portion of the A aquifer in December 2004, in the area of WATS extraction well EA2-2 (TtEC, 2005b), there is hydraulic communication between the lower portion of the A aquifer and the upper portion of the A aquifer.

The distribution of coarse-grained and fine-grained sediment layers above approximately 35 feet bgs (analogous to the upper portion of the A aquifer) and below 35 feet bgs (analogous to the lower portion of the A aquifer) suggests two separate fluvial depositional environments. The discontinuous nature of the coarse-grained layers encased in fine-grained soil from surface to 35 feet bgs is typical of a braided fluvial environment. The deposits apparent below 40 feet bgs may be indicative of a floodplain environment. This interpretation of differing hydrogeologic conditions is consistent with what was observed during pump testing, as described in the *West-Side Aquifers Treatment System Optimization Completion Report* (TtFW, 2005c).

## 8.4 CLASSIFICATION OF GROUNDWATER

Groundwater samples collected from the DPT borings were analyzed for major cations (sodium, potassium, calcium, and magnesium) and major anions (chloride, sulfate, bicarbonate, and nitrite), as described in Section 4.0. Results were listed by location and depth in Table 4-1. To assess the completeness of the ionic data, an ionic balance for each set of samples was calculated using Rockworks™ 2004. The program calculates ionic balance using the following equation, with ion concentration expressed as milliequivalents per liter.

$$\frac{\text{cations} - \text{anions}}{\text{cations} + \text{anions}} \times 100 = \text{ionic balance as a percentage}$$

Values within 5 to 10 percent are considered balanced. Results of the ionic balance are presented in Table 8-2 and indicate that none of the groundwater samples collected during this investigation are within 5 to 10 percent. For all of the groundwater samples, there was a positive imbalance (an apparent large mass of cations). The imbalance appears to be caused by the method of groundwater sample collection (HydroPunch® using a bailer). The field geologist reported that the samples were turbid, but followed the Sampling and Analysis Plan to the *Final West-Side Aquifers Treatment Systems Optimization Work Plan Addendum 1* (TtFW, 2005a), which did not specify field filtering. The groundwater samples for cation analysis were stabilized (acidified) in the field, which resulted in an artificial increase in mass of the cations. The results described below should be used with caution.

The majority of the data suggest a calcium/sulfate water, with the outliers representing samples collected from the DPT boring at location CPT-88-13 (the location with the highest tetrachloroethene concentrations) or those collected from the DPT boring at location CPT-88-12 (the location furthest downgradient of the source areas). The data do not suggest spatial variance (vertically or laterally) and limited variance in chemical composition. The similarity in water vertically and laterally is interpreted to suggest that there is hydraulic communication vertically and laterally within the A aquifer.

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## **9.0 SOURCE EVALUATION AND CONTAMINANT FATE AND TRANSPORT**

For this investigation, soil with tetrachloroethene (PCE) concentrations greater than the U.S. Environmental Protection Agency (EPA) Region 9 residential Preliminary Remediation Goal (PRG) of 480 micrograms per kilogram ( $\mu\text{g/kg}$ ) (EPA, 2004b) was considered a PCE source area. The EPA Region 9 residential soils PRG of 480  $\mu\text{g/kg}$  for PCE was used for the site screening value for soils. The residential soils PRG's role in site screening is to help identify areas that may require further attention. The residential soils PRG for PCE is slightly lower than the cleanup level identified in the Middlefield-Ellis-Whisman Record of Decision (soil remediation standard for PCE of 100 times the corresponding groundwater value of 5 micrograms per liter [ $\mu\text{g/L}$ ] – 500  $\mu\text{g/kg}$ ). It is likely that soil with PCE concentrations greater than 480  $\mu\text{g/kg}$  was historically contaminated through direct contact with PCE or PCE-containing wastewater migrating from a leaking floor drain, sump, or sewer. Two PCE source areas were identified and confirmed during the investigation: the eastern and northern portion of the Building 88 footprint and the traffic island located at the corner of Cummins Avenue and Wescoat Road (Figure 9-1).

### **9.1 PCE SOURCE AREA SOILS**

The following sections describe two source areas identified and confirmed during the investigation.

#### **9.1.1 Building 88 Area**

PCE was used at the former Building 88, the historic base dry cleaners. PCE was detected at concentrations up to 1,200 parts per billion by volume (ppbv) during the soil gas survey, primarily in the eastern portion of the building footprint (see Section 2.3). Eight direct push technology (DPT) borings and four continuous soil cores were advanced within, or adjacent to, the Building 88 footprint to characterize the extent of PCE in subsurface soils. PCE concentrations in soil greater than 480  $\mu\text{g/kg}$  were detected in the DPT borings at cone penetrometer testing (CPT) locations CPT-88-1, CPT-88-3, and CPT-88-22, and in coreholes CC-88-2 and CC-88-3. CPT-88-1 and CPT-88-22 were located along a former drain line upstream of Sump 66. CC-88-2 was located within the former Sump 66 area. CPT-88-3 and CC-88-3 were located in the north excavation area, which is in the eastern portion of the Building 88 footprint. Tables 3-2 and 4-2 provided the specific PCE concentrations in soil at depth by location. Cross sections through the Building 88 footprint (Figure 9-2) showing PCE concentrations in soil are presented on Plate 9-1. PCE isoconcentration contours of soil at

various depth intervals are presented on Plates 9-2 and 9-3. PCE isoconcentrations of soil have been developed in order to evaluate environmental response actions.

The maximum PCE concentration in soil samples collected beneath the Building 88 footprint were located in the area of Sump 66. PCE was detected at a concentration of 6,700 µg/kg in a clayey silt soil sample from the DPT boring at location CPT-88-22 at 12 to 13 feet below ground surface (bgs) (see Plate 9-2). Lithology of CPT logs are not based on the Unified Soil Classification System (USCS); thus, a USCS lithologic symbol is not applied in the following discussion. The DPT boring at location CPT-88-22 was installed near a former floor drain that discharged to Sump 66. PCE concentrations in soil decreased with depth at location CPT-88-22 and were less than 480 µg/kg at a depth of 20 feet bgs in a clayey silt. PCE concentrations remained less than 480 µg/kg to the total depth investigated.

Eight feet to the north of location CPT-88-22, along the same drain line and adjacent to Sump 66, soil samples from the DPT boring at location CPT-88-1 had similar PCE soil concentrations at shallow depths. PCE concentrations in soil samples from the DPT boring at location CPT-88-1 ranged from 6,400 µg/kg at 12.5 to 13.5 feet bgs in a silty clay to 650 µg/kg at 30.5 to 31.5 feet bgs in a clayey silt. However, PCE concentrations in soil samples from the DPT at location CPT-88-1 were below 480 µg/kg from 18.5 to 19.5 feet bgs in a sandy silt and 24.5 to 25.5 feet bgs in sand. The PCE concentration in the soil sample collected from the DPT boring from location CPT-88-1 was less than 480 µg/kg at the subsequent sampling depth of 38.5 to 39.5 feet bgs in a silt and remained less than 480 µg/kg to the total depth investigated.

Eight feet further to the north of location CPT-88-1, near Sump 66, PCE soil concentrations of 2,300 µg/kg, 1,300 µg/kg, and 2,000 µg/kg were detected in soil samples from boring CC-88-2 from 18.5 to 19 feet bgs in a silty sand (SM), 25 to 25.5 feet bgs in a silt (ML), and 26 to 26.5 feet bgs in sand to silty sand (SW-SM), respectively. Lithologic symbols are based on the USCS, as described in *Visual Classification of Soil* (Bureau of Reclamation, 1986) and the *2000 Standard Practice for Description and Identification of Soils (Visual-Manual Procedures)* (American Society for Testing and Materials D2488-00). The PCE concentration in soil in boring CC-88-2 was less than 480 µg/kg at the subsequent sampling depth of 41 to 41.5 feet bgs in a silt (ML) and remained less than 480 µg/kg to total depth.

The combined results of soil samples from the DPT boring at location CPT-88-1 and the core boring CC-88-2 indicate the presence of a potential continuing source area that may require further attention from approximately 10 to 35 feet bgs in the area of Sump 66 (see Plates 9-1 through 9-3). The highest PCE concentrations were detected in fine-grained soil (silt and clay) located at shallow depths closest to the former sources (drain line and Sump 66). It appears that PCE distribution is related more to proximity to the former source than to soil type in the Sump



66 area. However, since only fine-grained soil was present at 12 to 13 feet bgs, a comparison of PCE distribution to soil type is not possible.

PCE soil contamination at concentrations greater than 480 µg/kg was also detected in the northern remedial excavation area. The previous soil removal did not extend below the water table, which was approximately 8 feet bgs at that time. PCE soil concentrations were detected above 480 µg/kg in post-excavation samples, as described in Section 1.2.5. CC-88-3 and a DPT boring at CPT-88-3 were located in the northern remedial excavation area (see Figure 9-2). PCE concentrations in soil of 5,200 µg/kg at 14 to 14.5 feet bgs in a sand (SP) and 3,500 µg/kg at 12 to 13 feet bgs in clay were detected at CC-88-3 and from the DPT boring at location CPT-88-3, respectively. PCE contamination in soil at concentrations greater than 480 µg/kg extended to a maximum depth of 19.5 feet bgs in a sand (SP) soil sample in boring CC-88-3 and 13 feet bgs in a clay soil sample from the DPT at location CPT-88-3. The combined results of soil samples from the DPT boring at locations CPT-88-3 and CC-88-3 indicate the presence of a potential continuing source area that may require further attention from approximately 8 to 20 feet bgs in the northern excavation area (see Plates 9-1 and 9-2). PCE appears to be present at high concentrations in both fine-grained and coarse-grained soil at shallow depths in the northern excavation area.

Soil with PCE concentrations greater than 480 µg/kg extends to a maximum depth of approximately 35 feet bgs in the Sump 66 vicinity. It ranges from 20 to 32 feet bgs along a former floor drain line upstream of Sump 66 and approximately 20 feet bgs underlying the northern excavation area. The estimated volume of soil with PCE concentrations greater than 480 µg/kg within the Building 88 area is 775 cubic yards (cu yd). The estimated mass of PCE in the soil concentrations greater than 480 µg/kg within the Building 88 area is 2.5 pounds. PCE mass in soil was estimated by first calculating soil volume for each of the areas shown on Plates 9-2 and 9-3. The volume was multiplied by 0.7 to account for void space. The soil volume was then multiplied by the geometric mean of the PCE concentration contour intervals (the highest PCE concentration was used for the upper contour at the maximum interval).

Shallow PCE contamination in soil in the Building 88 area does not extend laterally much farther than the building footprint. CPT-88-5 and CPT-88-14 were located to the north of the Building 88 area, north of Wescoat Road (see Figure 9-2). PCE was not detected above the laboratory reporting limit of 6 µg/kg in shallow soil samples collected at 10.5 to 11.5 feet bgs and 23.5 to 24.5 feet bgs from the DPT boring at location CPT-88-5 or 10 to 11 feet bgs and 26 to 27 feet bgs from the DPT boring at location CPT-88-14.

The former dry cleaning facility had numerous wastewater collection trenches, floor drains, subsurface piping and sumps. Whether through cracks in the wastewater collection trenches, floor drains, subsurface piping and/or sump, PCE was released into the subsurface. The results of

previous investigations and removal actions (see Section 1.0), the soil gas survey (see Section 2.0), and the findings from the soils analysis suggest releases occurred in two areas: in the area of Sump 66 and in the eastern section of the Building 88 footprint. The majority of PCE soil contamination greater than the residential soils PRG of 480 µg/kg is relatively shallow, extending to approximately 20 feet bgs over most of the impacted area, and to 35 feet bgs near Sump 66. Where present near the source areas, coarse-grained soil contained higher PCE concentrations than adjacent finer grained soil. However, the overwhelming majority of the soil from 10 to 35 feet bgs are fine-grained (sils and clays). Thus, the majority of the PCE concentrations greater than 480 µg/kg is found in finer-grained soil.

### 9.1.2 Traffic Island Area

Elevated PCE soil gas concentrations were detected along the sewer alignment in the downstream direction (to the east and north) from the Building 88 footprint (see Section 2.3). Seven CPT/DPT boring locations were placed adjacent to the sewer alignment to determine if PCE contamination was present, and if present, to define the extent of PCE in the subsurface. CPT/DPT borings were advanced at location CPT-88-19 adjacent to the location of soil gas probe SG-88-4, where the highest soil gas PCE concentration had been detected (11,000 ppbv). CPT/DPT borings were advanced at location CPT-88-13 adjacent to the location of soil gas probe SG-88-42, where the second highest soil gas PCE concentration had been detected (5,900 ppbv). PCE concentrations in soil greater than 480 µg/kg were detected from the DPT borings at locations CPT-88-13, CPT-88-19, and CPT-88-23 (along the northern portion of Cummins Avenue). Geologic cross sections through the traffic island area (Figure 9-3) are presented on Plate 9-4. PCE isoconcentration contours at various depth intervals are presented on Plates 9-5 and 9-6.

The maximum PCE concentration in soil samples collected along the northern portion of Cummins Avenue were located within the traffic island area at the corners of Cummins Avenue, Wescoat Road, and Cody Road. PCE was detected in all soil samples collected from the DPT boring at location CPT-88-13 and the subsequent deeper over-drilled boring for monitoring well W88-1. PCE concentrations ranged from 580 µg/kg in sand at 29.5 to 30.5 feet bgs, to 10,000 µg/kg in clay (CL) at 70 to 70.5 feet bgs. PCE was detected at 8,700 µg/kg in sand with silt and gravel (SW- SM) from 73 to 73.5 feet bgs from the monitoring well boring for W88-1. However, the PCE concentration of 8,700 µg/kg from 73 to 73.5 feet bgs and possibly the 10,000 µg/kg from 70 to 70.5 feet bgs are considered to be caused by drag-down during sampling, since the soils concentrations are not consistent with groundwater sample concentrations from the same depth interval (see Section 6.3). PCE was detected at 610 µg/kg from 48 to 49 feet bgs in a clayey silt sample from the DPT boring located at CPT-88-23. PCE concentrations in soil from the DPT boring at location CPT-88-23 were less than 480 µg/kg in soil samples collected above and below the 48- to 49-foot bgs sample. PCE was detected at 540 µg/kg in a sandy silt soil

sample from 6 to 7 feet bgs, collected from the DPT boring located at CPT-88-19. PCE concentrations in soil from the DPT boring at location CPT-88-19 decreased with depth and was less than 480 µg/kg at a depth of 11.5 feet bgs in a silty clay. PCE concentrations remained less than 480 µg/kg to total depth.

PCE soil contamination in the traffic island area appears to be centered on the sewer, which was the discharge for wastewater from the Building 88's Sump 66. It appears that a leak occurred at or downstream from a 90° bend at the intersections of Wescoat Road, Cummins Avenue, and Cody Road. PCE contamination at the traffic island appears to have migrated vertically downward and laterally along the sewer trench to the north. PCE was not detected above laboratory reporting limits in soil gas samples from three consecutive soil gas probes, SG-88-44, SG-88-6, and SG-88-7, located along the sewer alignment to the south of the traffic island (see Section 2.3). The volume of PCE-contaminated soils at concentrations greater than 480 µg/kg in the traffic island area is calculated to be 12,400 cu yd. The estimated mass of PCE in the soil concentrations greater than 480 µg/kg in the traffic island area is calculated to be 32 pounds. PCE mass in soil was estimated by first calculating soil volume for each of the areas shown on Plates 9-5 and 9-6. The volume was multiplied by 0.7 to account for void space. The soil volume was then multiplied by the geometric mean of the PCE concentration contour intervals (the highest PCE concentration was used for the upper contour at the maximum interval).

## 9.2 CONTAMINANT FATE AND TRANSPORT (GROUNDWATER)

Depth to groundwater in the area of the Building 88 is currently about 5 feet. However, the depth to groundwater was likely less in past decades. As regional growth and development increased in the early part of the 1900s, so did extraction of groundwater. Over-production of groundwater lead to groundwater level declines, surface subsidence, and intrusion of saltwater into aquifers (Santa Clara Valley Water District, 1980). The maximum extent of these impacts may have occurred in the 1960s (Santa Clara Valley Water District, 1980). It is possible that much, if not all of the A aquifer may have been dewatered (dry) until the late 1960s. Production of groundwater decreased in the mid to late 1960s, as groundwater was replaced with water imported from the Hetch-Hetchy reservoir (Santa Clara Valley Water District, 1980). PCE-contaminated wastewater that leaked from Building 88 or the discharge sewer line in the traffic island area prior to the early 1970s, likely would have migrated through an unsaturated soil column through the A aquifer. This information is important, since contaminant fate and transport in unsaturated soils differs from that of a saturated aquifer. With the decrease in groundwater production from the lower aquifers in the mid to late 1960s, the water table began to rise.

PCE was detected in groundwater HydroPunch® samples at concentrations ranging from below the laboratory reporting limit of 0.5 µg/L to 15,000 µg/L (see Table 4-1). The solubility of PCE in water is listed as 150 milligrams per liter (mg/L) at 25° Centigrade (Verschuere, 1983).

Concentrations of chlorinated solvents in groundwater at greater than 1 percent of their solubility limit are assumed to suggest the presence of a dense non-aqueous phase liquid (DNAPL) (EPA, 2004c). However, a separate non-aqueous phase is not typically detected in field samples at the 1 percent level. A separate non-aqueous phase may be detected in field samples as the concentration increases to greater than 10 percent of the solubility limit. For PCE, 1 percent of the solubility limit is a concentration of 1,500 µg/L in groundwater.

HydroPunch® groundwater samples were collected over a 2-foot or 3-foot interval at the Building 88 and traffic island area, and at select downgradient locations. Groundwater monitoring well samples were collected from monitoring well screens that are 2 to 15 feet long. HydroPunch® groundwater sample results from various locations were compared to sample result from groundwater monitoring wells as described below:

- HydroPunch® groundwater sample from CPT-88-5 compared to upper A aquifer monitoring well W9-46 and lower A aquifer monitoring well W9SC-15
- HydroPunch® groundwater sample from CPT-88-6 compared to upper A aquifer monitoring well WIC-1 and lower A aquifer monitoring well W9-20
- HydroPunch® groundwater sample from CPT-88-7 compared to upper A aquifer monitoring well W9-23
- HydroPunch® groundwater sample from CPT-88-8 compared to lower A aquifer monitoring well W9SC-3
- HydroPunch® groundwater sample from CPT-88-11 compared to upper A aquifer monitoring well W29-3

Monitoring well W9-46 is an upper A aquifer monitoring well, with a 10-foot-long screen completed over the interval of 17 to 27 feet bgs. The CPT lithologic log at location CPT-88-5 (about 40 feet to the west of W9-46) shows sandy soils from about 21 to 25 feet bgs (see Appendix E). The PCE concentration in a groundwater sample from W9-46, collected on April 27, 2005, was estimated at 150 µg/L. The PCE concentration in the HydroPunch® sample from location CPT-88-5 at a depth of 23 to 25 feet bgs was 0.55 µg/L.

Monitoring well W9SC-15 is a lower A aquifer monitoring well, with a 3-foot-long screen completed over the interval of 30 to 33 feet bgs. The CPT lithologic log at location CPT-88-5 (about 10 feet to the west of W9SC-15) shows clayey silts from about 30 to 37 feet bgs (see Appendix E). The PCE concentration in a groundwater sample from W9SC-15, collected on April 27, 2005, was estimated at 170 µg/L. Sufficient volume could not be collected for PCE sample analysis in the HydroPunch® sample from the boring at location CPT-88-5 between 30 to 33 feet bgs due to low apparent hydraulic conductivity.

Monitoring well WIC-1 is an upper A aquifer monitoring well, with a 5-foot-long screen completed over the interval of 18.7 to 23.7 feet bgs. The CPT lithologic log at location CPT-88-6 (about 35 feet to the north of WIC-1) shows sandy soils from about 20 to 23 feet bgs (see

Appendix E). The PCE concentration in a groundwater sample from WIC-1, collected on April 28, 2005, was 12 µg/L. The PCE concentration in the HydroPunch® sample from a boring at location CPT-88-6 at a depth of 20 to 23 feet bgs was 17 µg/L.

Monitoring well W9-20 is a lower A aquifer monitoring well, with a 15-foot-long screen completed over the interval of 30 to 45 feet bgs. The CPT lithologic log at location CPT-88-6 (about 50 feet to the southwest of W9-20) shows sandy soils from about 28 to 31 feet bgs and from 42 to 46 feet bgs (see Appendix E). The PCE concentration in a groundwater sample from W9-20, collected on April 28, 2005, was estimated at 530 µg/L. The PCE concentration in the HydroPunch® sample from a boring at location CPT-88-6 at a depth of 29 to 31 feet bgs was 27 µg/L and at a depth of 42 to 44 feet bgs was estimated at 120 µg/L.

Monitoring well W9-23 is an upper A aquifer monitoring well, with a 10-foot-long screen completed over the interval of 18 to 28 feet bgs. The CPT lithologic log at location CPT-88-7 (about 80 feet to the southeast of W9-23) shows sandy soils from about 23 to 25 feet bgs (see Appendix E). The PCE concentration in a groundwater sample from W9-23, collected on April 27, 2005, was 3.6 µg/L. The PCE concentration in the HydroPunch® sample from a boring at location CPT-88-7 at a depth of 23 to 25 feet bgs was 7.3 µg/L.

Monitoring well W9SC-3 is a lower A aquifer monitoring well, with a 3-foot-long screen completed over the interval of 31.5 to 34.5 feet bgs. The CPT lithologic log at location CPT-88-8 (about 45 feet to the southeast of W9SC-3) shows sandy silts from about 29 to 31 and from 32 to 34 feet bgs (see Appendix E). The PCE concentration in a groundwater sample from W9SC-3, collected on April 27, 2005, was 67 µg/L. The PCE concentration in the HydroPunch® sample from a boring at location CPT-88-8 at a depth of 32 to 34 feet bgs was 58 µg/L.

Monitoring well W29-3 is an upper A aquifer monitoring well, with a 10-foot-long screen completed over the interval of 10.5 to 20.5 feet bgs. The CPT lithologic log at location CPT-88-11 (about 15 feet to the west of W29-3) shows clayey silts from about 11 to 12 feet bgs, 16 to 17 feet bgs, and 18 to 21 feet bgs (see Appendix E). The PCE concentration in a groundwater sample from W29-3, collected on April 28, 2005, was 6.5 µg/L. The PCE concentration in the HydroPunch® sample from a boring at location CPT-88-11 at a depth of 10 to 13 feet bgs was 0.5 µg/L and from 18 to 20 feet bgs 7.1 µg/L.

In general, there appears to be a reasonable comparison of PCE concentrations between groundwater samples collected from groundwater monitoring wells and groundwater samples collected from a HydroPunch®. The groundwater sample data from two of the longer screened monitoring wells, W9-46 and W9-20, were not comparable with the HydroPunch® sample data. There is some indication that the longer the monitoring well screen, the less there was a correlation between the monitoring well and HydroPunch® groundwater samples, regardless of the hydrostratigraphy.

### 9.2.1 Building 88 Area

The distribution of PCE concentrations in groundwater with respect to depth bgs at the former Building 88 area is shown on Plates 9-7 and 9-8. In addition, the distribution of PCE concentrations in groundwater related to individual lithologic layers are shown in the geologic cross sections D-D' and E-E' (see Plate 9-1). The two cross sections are oriented approximately 20° to 30° from the northerly regional groundwater flow direction (see Figure 9-2). PCE concentrations in groundwater samples collected beneath the Building 88 area range from less than the laboratory reporting limit of 0.5 µg/L to a high estimated value of 2,100 µg/L at 56 to 59 feet bgs from the DPT boring at location CPT-88-15. In general, in the southern and western portion of the Building 88 footprint, PCE concentrations are less than 20 µg/L in groundwater samples collected from within permeable layers in the upper 30 feet bgs (upper portion of the A aquifer), and less than the EPA Region 9 drinking water Maximum Contaminant Level (MCL) of 5 µg/L in samples collected from below 30 feet bgs (lower portion of the A aquifer). This is consistent with the apparent de minimus soils contamination found in the southern and western portion of the Building 88 footprint (see Section 9.1.1).

In the eastern portion of the Building 88 footprint and in the area of Sump 66, PCE concentrations in groundwater samples are highest in the upper 15 feet (to a maximum of 1,100 µg/L at 12 to 14 feet bgs from the DPT boring at location CPT-88-1). The relative magnitude and location of the groundwater contamination to a depth of 20 feet bgs is consistent with the shallow soils contamination found in the eastern portion of Building 88 and in the area of Sump 66 (see Plate 9-2). An apparent increase in both PCE concentration and volume of impacted groundwater at 21 to 30 feet bgs may be due to lithology, as there are more permeable soils found at this depth interval.

The PCE contamination in the groundwater sample from monitoring well W9-46 (estimated at 150 µg/L, screened from 17 to 27 feet bgs) shown within the 16- to 20-foot bgs depth interval in Plate 9-7 does not appear to be related to Sump 66, due to the low PCE concentration in the groundwater sample from the adjacent monitoring well W9SC-14 (estimated at 5 µg/L, screened from 17 to 20 feet bgs). However, the PCE concentration in the groundwater sample from monitoring well W9-46 is likely due to the longer screen interval and the higher PCE concentrations at the 21- to 30-foot bgs depth interval (see Plate 9-7) originating from the Sump 66 area.

PCE concentrations in groundwater increase with depth to the north of the Building 88 area at depths greater than 30 feet bgs (lower portion of the A aquifer) to a maximum estimated value of 2,100 µg/L in a groundwater sample collected from 56 to 59 feet bgs from the DPT boring at location CPT-88-15 (see Plate 9-8). It appears that PCE-contaminated groundwater (possibly as DNAPL, since the concentration of PCE in the groundwater sample from the DPT boring at location CPT-88-15 at 56 to 59 feet bgs is greater than 1 percent of the solubility limit of PCE [see Section 9.2]) moved vertically downward to about the 20-foot bgs depth underlying the Building 88 footprint. At the 21- to 30-foot depth interval, the PCE-contaminated groundwater

moved advectively and/or down-dip to the north, if in DNAPL phase. PCE contamination then found a vertical pathway and moved to the investigated depth of 60 feet bgs. PCE-contaminated groundwater in the lower A aquifer appears to be moving generally downgradient by advection in the more permeable units. The apparent northwestern localized flow direction may be caused by a combination of lithology (channelization) and pumping of the lower A aquifer. Due to the nature and extent of PCE contamination in groundwater, the amount of PCE is assessed for the overall upper and lower portions of the A aquifer and not for the individual source areas described in Section 9.2.3.

In general, it appears that PCE concentrations in the fine-grained soil samples collected at depths above 20 to 35 bgs are higher than groundwater concentrations. The soil-water partitioning coefficient for PCE is listed as 155 milliliters per gram by the EPA (1996), which is not a high value (PCE prefers to stay in the liquid phase). However, the total organic carbon (TOC) for much of the fine-grained soils above 20 to 35 feet bgs is relatively high, allowing for greater sorption. The coarser-grained soil contained much less TOC than the fine-grained soil, and thus, appeared to have sorbed lower concentrations of PCE. Soil samples from the coarser-grained layers in the upper 35 feet bgs generally had lower PCE concentrations in soils than the groundwater samples collected from those same layers. Below depths of about 35 feet bgs, the soil samples contain less TOC, and the PCE concentrations in soil samples were less than the groundwater sample concentrations. This interpretation is consistent with the findings presented in Section 9.1.1.

In order to evaluate environmental response actions, it is necessary to determine if subsurface PCE concentrations are primarily found in the water (sorbing to the soils), bound to the soils (desorbing to the water), or in equilibrium between water and soils. This evaluation is made by comparing the measured soil PCE concentration, the theoretical sorbed PCE concentration, and the PCE groundwater concentration. The theoretical sorbed concentrations of PCE to soil are based on the PCE groundwater concentration and the TOC concentration, calculated using the following equations:

$$\text{Sorbed PCE soil concentration} = K_d \times C_{gw}$$

Where,

$C_{gw}$  = groundwater PCE concentration

$K_d$  = distribution coefficient =  $K_{oc} * f_{oc}$

Where,

$K_{oc}$  = organic carbon-water partitioning coefficient

$f_{oc}$  = fraction organic carbon

The analysis uses averaged values over the upper or lower portion of the A aquifer at the following Building 88 locations. The results of the analysis are provided in Table 9-1.

- CPT-88-1      Building 88, adjacent to Sump 66
- CPT-88-2      Building 88, within Sump 91

- CPT-88-3            Building 88, northern excavation area
- CPT-88-15          North of Building 88

PCE-contaminated soils are primarily desorbing to groundwater in the upper portion of the A aquifer in the Sump 66 and the northern excavation areas. PCE concentrations are generally in equilibrium between the soil and groundwater in the upper portion of the A aquifer in the area of Sump 91 and to the north of Sump 66.

Dissolved PCE-contaminated groundwater is sorbing to the soils in the lower portion of the A aquifer in the Sump 66 and to the north of Sump 66 areas. PCE concentrations are generally in equilibrium between the soil and groundwater in the lower portion of the A aquifer in the Sump 91 and to the northern excavation.

## 9.2.2 Traffic Island Area

The distribution of PCE concentrations in groundwater with respect to depth bgs at the traffic island area is shown on Plates 9-9 and 9-10. In addition, the distribution of PCE concentrations in groundwater related to individual lithologic layers are shown in the geologic cross sections F-F' and G-G' (see Plate 9-4). Cross section F-F' is oriented north-south, looking toward the east, generally along the regional groundwater flow direction. Cross section G-G' is oriented west-east, looking toward the north, generally orthogonal to the regional groundwater flow direction. Concentrations of PCE in groundwater samples collected from beneath the traffic island area ranged from 2,000 µg/L at 57 to 60 feet bgs to 15,000 µg/L at 17 to 19 feet bgs from the DPT boring at location CPT-88-13. The PCE concentration in a groundwater sample collected in December 2005, from monitoring well W88-1, screened at a depth of 72 to 82 feet bgs directly beneath the DPT boring at location CPT-88-13, was 6 µg/L (see Section 6.3). This concentration is not consistent with the PCE soils concentration of 8,700 µg/kg from the sample collected in the screen interval at 73 to 73.5 feet bgs. The relatively high PCE concentrations detected in this soil sample is considered to have been caused by drag-down during sampling (See Sections 6.3 and 9.1.2).

PCE concentrations in groundwater samples collected south (hydraulically upgradient) of the traffic island (from DPT borings at locations CPT-88-16 and CPT-88-17, and from monitoring well WNX-2) were less than the PCE MCL of 5 µg/L. PCE concentrations in groundwater appear to decrease to the north, with concentrations of PCE in groundwater samples collected from the DPT boring at location CPT-88-19 (the closest downgradient location, about 200 feet to the north) detected above the MCL at 6 to 9 feet bgs (estimated at 830 µg/L), at 27 to 30 feet bgs (9.5 µg/L), and at 47 to 50 feet bgs (estimated at 130 µg/L).

The apparent elongated shape of the groundwater contamination to a depth of 15 feet bgs is likely controlled by the utility corridor underlying Cummins Avenue and Wescoat Road (see Plate 9-9). The apparent increase in PCE concentration and decrease in apparent volume of impacted groundwater at the 16- to 20-foot bgs interval may be due to encountering native fine-



grained soils restricting the movement of PCE contamination. Below a depth of 30 feet bgs, PCE contaminant migration appears to be controlled by the more permeable layers of soil. It appears that PCE contamination moved vertically down to a depth of about 70 feet bgs below the traffic island and did not fully penetrate a clay layer at this depth. Based on the PCE concentrations measured in this investigation, the vertical movement of contamination in the traffic island was likely a combination of DNAPL and dissolved phase. DNAPL is likely still present and can be detected in field samples in the depth interval of 6 to 20 feet bgs in the area of location CPT-88-13, based on PCE concentrations detected at or near 10 percent of its solubility limit (see Section 9.2). DNAPL was likely a driving force for the vertical migration of PCE to about 70 feet bgs in the area of CPT-88-13, as reported concentrations are greater than 1 percent of the solubility limit to that depth.

The assessment of potential environmental response actions (determining if subsurface PCE concentrations are primarily found in the water [sorbing to the soils], bound to the soils [desorbing to the water], or in equilibrium between water and soils) was evaluated as described in Section 9.2.1. The analysis uses averaged values over the upper or lower portion of the A aquifer at the following traffic island source area locations. The results of the analysis are provided in Table 9-1.

- CPT-88-13 Traffic island
- CPT-88-23 North of traffic island

Dissolved PCE-contaminated groundwater is sorbing to the soils in the upper portion of the A aquifer to the north of the traffic island. Dissolved PCE-contaminated groundwater appears to be sorbing to the soils in the upper portion of the A aquifer in the traffic island however, the average PCE soils concentration is about a factor of two greater than the calculated sorbed concentration due to low TOC concentrations. This apparent condition may be caused by residual high groundwater PCE concentrations in the fine-grained soil during laboratory analysis and/or the presence of DNAPL.

Dissolved PCE-contaminated groundwater is sorbing to the soils in the lower portion of the A aquifer to the north of the traffic island. Dissolved PCE-contaminated groundwater appears to be sorbing to the soils in the lower portion of the A aquifer in the traffic island however, the average PCE soils concentration is about an order of magnitude greater than the calculated sorbed concentration due to low TOC concentrations. This apparent condition may be caused by residual high groundwater PCE concentrations in the fine-grained soil during laboratory analysis and/or the presence of DNAPL.

### 9.2.3 Downgradient PCE Plume

Compositing the subsurface utility information, the coarse-grained soil distributions, the DPT groundwater sample data, and the groundwater monitoring well data provides a different depiction of the downgradient PCE plumes (upper A aquifer [Figure 9-4] and lower A aquifer

[Figure 9-5] plumes) than interpreted using only the December 2004 groundwater monitoring data (see Section 1.2.7). The source area for both the upper and lower A aquifer PCE plumes appears to be related to the northern and eastern portion of the Building 88 area, the Sump 66 discharge sewer along Wescoat Road, and at the traffic island along Cummins Avenue. There are two PCE plume lobes within the upper portion of the A aquifer. The lobe to the east is a narrow linear feature along Cummins Avenue. The eastern lobe, found in the shallowest portions of the upper A aquifer, is interpreted to be controlled by the backfill of the utilities along Cummins Avenue. The eastern PCE lobe is mostly defined by the DPT HydroPunch® data. It is possible that there is some dispersion that would cause dissolved PCE to migrate beneath Hangar 1. However, based on the limited dispersion on the west side of Cummins Avenue, PCE concentrations were not projected beneath Hangar 1 in the upper A aquifer. The eastern lobe is about 1,000 feet long and generally less than 50 feet wide. The western boundary of the eastern lobe is explicitly defined by groundwater monitoring wells W9-45 and W9SC-1, and implicitly defined by the physical environment (subsurface utilities along Cummins Avenue). The eastern boundary of the eastern lobe is explicitly defined by the DPT samples from location CPT-88-18 and groundwater monitoring well WWR-1 and is implicitly defined by the physical environment. The concentrations of PCE in the eastern lobe of the upper A aquifer decrease to the north, away from the traffic island source area. The highest concentration of PCE within the eastern lobe, downgradient of the traffic island source area, was reported at an estimated concentration of 830 µg/L in a groundwater sample from the DPT boring at location CPT-88-19 collected at a depth of 6 to 9 feet bgs. CPT-88-19 is located approximately 200 feet north of the traffic island.

The western PCE lobe within the upper portion of the A aquifer does not differ from the depiction developed using solely groundwater monitoring well data (see Section 1.2.7). The PCE groundwater plume, as detected in the upper portion of the A aquifer groundwater monitoring wells, is approximately 2,000 feet long and from 150 to 250 feet wide. The plume has an elongated shape in a north-south direction, is interpreted to be due to the channelization characteristics of coarse-grained soil (see Section 8.3), and appears to be influenced by extraction well pumping from the upper A aquifer. Groundwater samples from monitoring wells W9-10, 14D12A, 14B27A, and 14D30A are used in delineating the northern (downgradient) edge of the western lobe. The southern edge of the western lobe is not delineated and may have a contribution from upgradient sources. The eastern edge of the western lobe is delineated by groundwater samples from monitoring wells W9SC-7, W9-23, and UST85-MW02. The western edge of the PCE plume is delineated by groundwater samples from monitoring wells W9-6 and W29-4. The highest concentration of PCE within the western lobe, downgradient from the former Building 88 source area, was reported at an estimated concentration of 150 µg/L in a groundwater sample from monitoring well W9-46 collected in April 2005, which is approximately 100 feet northeast of the former Building 88.

The total amount of PCE in the upper portion of the A aquifer, including the eastern and western lobes, is calculated to be 48 pounds. PCE mass in groundwater was calculated by multiplying the surface area for the revised upper A aquifer PCE plume on Figure 9-5 by the estimated aquifer thickness of 23 feet. The resulting volume was multiplied by 0.3 to account for the solid fraction. The water volume was then multiplied by the geometric mean of the PCE concentration contour intervals (the highest PCE concentration was used for the upper contour at the maximum interval).

The PCE plume within the lower portion of the A aquifer is wider than depicted using solely groundwater data from monitoring wells. Dissolved PCE in the lower A aquifer along Cummins Avenue (downgradient of the traffic island) appears to be controlled by preferred flow paths (sand channels) and the groundwater flow direction. It is possible that there is some dispersion that would cause dissolved PCE to migrate beneath Hangar 1. However, since extraction well EA2-3 only contains low PCE concentrations, it is not likely that there is significant dispersion beneath Hangar 1. The PCE groundwater plume, as detected in lower A aquifer groundwater monitoring wells, is approximately 1,600 feet long and varies from 250 to 500 feet wide. The plume is located immediately west of Hangar 1 (Figure 9-6). The northern edge of the PCE plume appears to be lobate, as suggested using the DPT groundwater sample at location CPT-88-11 collected at a depth of 31 to 33 feet bgs and the 2005 groundwater sample collected from the WATS extraction well EA2-3 (29 µg/L of PCE). However, it is possible that the groundwater sample from the DPT boring at location CPT-88-11 collected at the depth of 31 to 33 feet is representative of the upper portion of the A aquifer. The northern edge of the PCE plume is delineated by groundwater samples from monitoring wells WU4-15, W29-7, and W9-22. The southern edge of the PCE plume is well-delineated in the area of the traffic island (groundwater samples from DPT locations CPT-88-16, CPT-88-17, and CPT-88-18), but not well-delineated in Building 88 (due to elevated detection levels of groundwater samples from monitoring wells to the south of the PCE plume). The southern edge of the PCE plume in the lower A aquifer appears to be in Building 88 area. The eastern edge of the PCE plume is partially delineated by groundwater samples from monitoring wells W9-21 and W9-42. The western boundary of the PCE plume is partially delineated by groundwater samples from monitoring wells W9-33 and W9-14. The highest concentration of PCE within the lower portion of the A aquifer, downgradient of the Building 88 or traffic island areas, was in a groundwater sample from monitoring well W9-20 at an estimated concentration of 530 µg/L collected in April 2005 (assuming that location CPT-88-23 is within the traffic island source area). The amount of PCE in the lower portion of the A aquifer is calculated to be 70 pounds. PCE mass in groundwater was calculated by multiplying the surface area for the revised lower A aquifer PCE plume on Figure 9-6 by the estimated aquifer thickness of 30 feet. The resulting volume was multiplied by 0.3 to account for the solid fraction. The water volume was then multiplied by the geometric mean of the PCE concentration contour intervals (the highest PCE concentration was used for the upper contour at the maximum interval).

Horizontal migration of PCE-contaminated groundwater from Building 88 and traffic island areas appear to be limited in the upper 30 feet by the lack of continuous sand channels (see Section 8.3). Although shallow (less than 30 feet bgs) PCE concentrations are high within permeable lenses in the Building 88 and traffic island areas, the downgradient concentrations in the upper portion of the A aquifer are significantly lower (see Figure 9-7 and Plate 9-9). It is likely that the lower PCE concentrations in the upper A aquifer downgradient of the source areas are a function of sorption, dispersion (macro-scale caused by the lack of continuity of sand channels, and micro-scale caused by advective groundwater flow), and dilution.

Horizontal migration of PCE-contaminated groundwater from the Building 88 and the traffic island areas appears to be prevalent below 30 feet due to the north-south continuity of sandy soils in the 40- to 46-foot interval and 45- to 52-foot interval of the lower A aquifer (see Section 8.3) influenced by extraction well pumping in the lower A aquifer. Although PCE concentrations at depths greater than about 35 feet bgs are relatively high within lenses in the Building 88 and traffic island areas, the downgradient PCE concentrations in the lower portion of the A aquifer are significantly lower (see Figure 9-8 and Plate 9-10). It is likely that the lower PCE concentrations in the lower A aquifer downgradient of the source areas are a function of sorption, dispersion, and dilution.

Groundwater samples collected from four B2 aquifer zone monitoring wells (51B2 and W9-11 in April 2005, and W88-1 and W88-2 in August 2005) contained PCE at concentrations at 69 µg/L, an estimated 0.17 µg/L, an estimated 0.31 µg/L, and an estimated 0.17 µg/L, respectively. Groundwater samples collected from three other B2 aquifer zone wells (W9-12 and W9-15 in April 2005, and W88-3 in August 2005) did not contain PCE at concentrations greater than the laboratory reporting limit. A groundwater sample collected from B2 aquifer zone monitoring well W88-1 in December 2005 contained PCE at a concentration of 6 µg/L. Groundwater samples collected from four other B2 aquifer zone wells in December 2005 (W9-12, W9-15, W88-2, and W88-3) did not contain PCE at concentrations greater than the laboratory reporting limit. The August 2005 groundwater sample collected from W88-1 was obtained shortly after well construction. The PCE concentration in the groundwater sample collected from W88-1 in August 2005 appears to be impacted by drag-down during well construction. There appears to be de minimus PCE impacting the B2 aquifer.

## 10.0 TREATABILITY STUDIES

Soil and groundwater samples were collected to conduct chemical oxidation treatment tests and to evaluate the presence of microorganisms. Chemical oxidation tests, biomarker analysis, and substrate screening objectives, methodologies, and results are described in the following sections.

### 10.1 TREATABILITY STUDY OBJECTIVES

Chemical oxidation tests, biomarker analysis, and substrate screening objectives are described in the following sections.

#### 10.1.1 Chemical Oxidation

The chemical oxidation laboratory treatability study objective was to determine the site-specific stoichiometry and amendments required for chemical treatment of site contaminants, and to determine the number of applications (if applicable) and associated reduction in soil and groundwater tetrachloroethene (PCE) contaminant concentrations.

#### 10.1.2 Biomarker Analysis

The biomarker analysis objective was to provide preliminary information relevant to the potential for biodegradation of chlorinated volatile organic compounds (VOCs), through in situ bioremediation. Specific objectives were as follows:

- Provide an assessment of the total viable biomass in the subsurface.
- Assess populations of *Dehalococcoides* spp. and functional genes coding for enzymes involved in reductive dechlorination.
- Generate information regarding microbial community structure and physiological status as baseline data to assess potential future shifts in community dynamics due to treatment or other considerations.

Sampling for biomarkers was limited to two locations, and the data are intended to provide a preliminary, scoping-level assessment of the potential for in situ bioremediation as a remedial approach at this site.

#### 10.1.3 Substrate Screening

The objective of the biotrap installation was to provide initial comparison of several carbon substrates to stimulate the indigenous microbial community, including sodium lactate, molasses, Hydrogen Release Compound (HRC® - a proprietary slow-release lactate compound), a proprietary substrate consisting of plant material and zero-valent iron (EHC™), and Edible Oil

Substrate (a proprietary vegetable oil formulation). Analysis of preliminary substrate screening provided information regarding preferred substrate(s) on a site-specific basis, which can be used in evaluating enhanced in situ bioremediation as a remedial technique.

## **10.2 CHEMICAL OXIDATION**

A chemical oxidation treatability study was performed by In-Situ Oxidative Technologies, Inc. (ISOTEC), West Windsor, New Jersey. Appendix H includes a copy of the laboratory treatability study report. A summary of the treatability study and results are presented below.

Soil and groundwater samples collected from continuous core boring CC-88-3 and the direct push technology (DPT) boring at location CPT-88-3 were used for bench-scale testing of the modified Fenton's process. Portions of groundwater and soil samples were prepared into a slurry (a mixture of composited site soil and groundwater by combining 2 parts soil to 1 part groundwater [by weight]) for use during the study. Experiments were performed independently on the groundwater and on the slurry samples.

The selected modified Fenton's reagent contained an oxidant and a proprietary catalyst. The oxidant used in the reagent was hydrogen peroxide, and the catalyst was ISOTEC's patented Catalyst 4260 (Cat-4260). Cat-4260 is a circum neutral pH organometallic complex with high mobility within the subsurface. An experimental control sample was set up during each experiment described below to document the changes in the target constituents.

### **10.2.1 Methodology – Groundwater**

A groundwater test experiment was performed in four identical 140-milliliter (mL) VOC-tight glass reactors. One of the four reactors served as a control reactor, while the remaining three treatment reactors received low-, medium-, and high-reagent dosages. The predetermined amount of modified Fenton's reagent was injected into each treatment reactor at small, incremental dosages. The treatment reactors received one, two, or three dosages to represent low-, medium-, and high-treatment conditions. Each dosage provided an equivalent hydrogen peroxide concentration of 0.4 percent, and catalyst concentration of 1.4 millimoles (mM) in the groundwater being treated. The multiple dosage approach (incremental approach) was used during the test to increase treatment efficiency, minimize gas formation and the resulting pressure buildup. Approximately 24 hours were maintained between dosages. All reactors (control and treatment) were left undisturbed for a minimum of 24 hours or until all the peroxide was consumed before analytical sample collection. The control sample was set up the same way, remained at, and was subject to the same conditions as the treatment reactor.

### **10.2.2 Methodology – Slurry**

The soil and groundwater slurry (slurry) test experiment was performed in four identical 40-mL VOC-tight glass reactors. One of the four reactors served as the control reactor, while the

remaining three served as treatment reactors. The slurry in each reactor was a 2:1 mixture (12 grams [g] of soil and 6 g of groundwater). A predetermined amount of modified Fenton's reagent was injected into each treatment reactor at incremental dosages. The treatment reactors received one, two, or three dosages to represent low-, medium-, and high-treatment conditions. Each dosage provided an equivalent hydrogen peroxide concentration of 1.9 percent and catalyst concentration of 6.9 mM in the supernatant of the slurry being treated. Upon completion of the experiment, the control and treatment reactors were preserved with methanol and submitted for VOC analysis.

### 10.2.3 Initial Concentrations

Three VOC compounds were detected at a cumulative VOC concentration of 4,380 micrograms per liter ( $\mu\text{g/L}$ ) (pre-treatment groundwater sample) and 7,219 micrograms per kilogram ( $\mu\text{g/kg}$ ) (pre-treatment slurry). Concentrations of individual compounds were as follows:

- Pre-treatment groundwater – PCE at 263  $\mu\text{g/L}$ 
  - trichloroethene (TCE) at 967  $\mu\text{g/L}$
  - cis-1,2-dichloroethene (cis-1,2-DCE) at 3,150  $\mu\text{g/L}$
- Pre-treatment slurry – PCE at 579  $\mu\text{g/kg}$ 
  - TCE at 4,060  $\mu\text{g/kg}$
  - cis-1,2-DCE at 2,580  $\mu\text{g/kg}$

Total organic carbon was present in site soil at a concentration of 930 milligrams per kilograms ( $\text{mg/kg}$ ). It was anticipated that a relatively low reagent dose would be sufficient for effective treatment, as there is little competition for oxidant from the organic materials present in site soils.

Iron and manganese present in site soils could decompose hydrogen peroxide. Iron in soil was detected at 28,700  $\text{mg/kg}$ , and manganese was detected at 330  $\text{mg/kg}$ . Iron in its dissolved phase in groundwater is known to be a catalyst to promote Fenton-type reactions. Dissolved iron was not detected at a reporting limit of 100  $\mu\text{g/L}$ . Manganese was detected at 281  $\mu\text{g/L}$ . Dissolved iron and manganese concentrations are too low to function as effective, naturally occurring catalysts for the Fenton-type reactions.

### 10.2.4 Chemical Oxidation Results – Groundwater

Chemical oxidation (Fenton's reagent) study results for groundwater are summarized in Table 10-1. A 99.7 percent VOC concentration reduction was noted after the lowest treatment condition (one dose). The PCE concentration decreased to below the laboratory reporting level

after two doses. TCE and cis-1,2-DCE concentrations were reduced to below the laboratory reporting level after one treatment dose.

1,1-Dichloroethane (1,1-DCA) persisted after three treatment dosages because of its slower reactivity with free radicals compared to TCE. The absence of double bonds in this compound makes it less vulnerable to free radical attack, resulting in 2-3 orders of magnitude lower hydroxyl radical reactivity. Nonetheless, up to an 87 percent reduction of 1,1-DCA was achieved after three dosages (see Table 10-1). Gradually decreasing 1,1-DCA concentrations with increasing treatment dosages indicates that this compound eventually will be destroyed, although at a slower rate compared to TCE, cis-1,2-DCE, or PCE.

### **10.2.5 Chemical Oxidation Results – Slurry**

Chemical oxidation (Fenton's reagent) study results for the slurry summarized in Table 10-2 indicate a 72 percent VOC concentration reduction after one reagent dose, and an 81 percent VOC concentration reduction after three reagent doses. Concentration reductions for PCE, cis-1,2-DCE, and TCE were 61 percent, 95 percent, and 65 percent, respectively, following three reagent dosages. The persistence of PCE, cis-1,2-DCE, and TCE and a slight rebound of PCE and TCE concentrations were a result of the sample heterogeneity, despite the sample compositing prior to conducting the study. Based on observed decreasing concentration trends, additional doses of reagent would likely treat the PCE, TCE, and cis-1,2-DCE to non-detect levels.

## **10.3 BIOMARKER ANALYSIS**

Biochemistry-based diagnostic assays were used to assess specific microorganisms and groups of microorganisms in soil and water samples. Since certain types of organisms are responsible for specific metabolic reactions, information gained from these assays provides a description of the conditions and processes affecting biodegradation of site contaminants on a site-specific basis.

### **10.3.1 Methodology**

Four samples, two groundwater samples and two soil samples, were collected from DPT borings at locations CPT-88-3 and CPT-88-19 (see Section 4.2) and were sent to Microbial Insights, Inc., for microbial biomarkers analysis.

The following microbial biomarker analyses were performed on each sample:

- Enumeration of *Dehalococcoides* spp., vinyl chloride (VC) reductase, and TCE reductase via quantitative polymerase chain reaction
- Phospholipid fatty acids via gas chromatography-flame ionization detection/mass spectrometry



Groundwater and soil sample PCE, TCE, cis-1,2-DCE, and VC concentrations in the microbial biomarkers samples are presented in Table 10-3.

### 10.3.2 Results

The contaminant data for each sample are consistent – cis-1,2-DCE was generally detected in variable, but relatively large concentrations, and VC was detected at very low concentrations, consistent with the West-Side Aquifers Treatment System (WATS) site data (Tetra Tech FW, Inc. [TtFW], 2005a). The presence of significant amounts of cis-1,2-DCE and trace amounts of VC suggests that reductive dechlorination of PCE and TCE, and to a limited extent cis-1,2-DCE, is occurring. This suggests that the presence of a carbon source and reducing conditions in the range appropriate for reductive dechlorination are present. However, reduction of cis-1,2-DCE appears to be minimal, and thus the characteristic and/or concentrations of naturally occurring organic carbon may be insufficient. It is also possible that appropriate microorganisms/metabolic capabilities required to bring about complete dechlorination to ethene may be limiting. The results of the biomarker analyses are described in this context below.

#### 10.3.2.1 Phospholipid Fatty Acid Analysis

Phospholipid fatty acids analysis provides several levels of information regarding the intact microbial community, including total viable biomass, physiological status, and community structure. Results for total viable biomass and physiological status markers are presented in Table 10-4, and community profiles are included with the laboratory report in Appendix I.

**Enumeration of Viable Biomass:** Total viable biomass is on the order of  $10^4$  to  $10^6$  cells/mL or g. These levels can be considered moderate and do not suggest any major deficiencies with respect to general microbial presence.

**Physiological Status Markers:** Physiological status markers provide indication of the general “health” of representative members of the microbial community with respect to their surroundings. These values represent the ratio of particular phospholipid fatty acids that are produced in response to less favorable conditions (such as nutritional deficiency or toxic stress) to phospholipid fatty acids that are produced in response to more favorable conditions (for example balanced growth). Thus, higher indices represent a greater degree of stress within the community. The results presented here suggest that there may be significant physiological stress within the microbial community. However, physiological stress markers from one sampling event are generally most useful when compared with results from subsequent events, following an induced change in subsurface conditions, such as substrate enhancement.

**Community Profiling:** Community profiles are presented in Appendix I. The profiles reflect various phospholipid fatty acids that are indicative of broad classes of microbes, which are present within the community in varying amounts, dependent upon sub-surface conditions. As

with the physiological status markers, community profile data are most appropriately used to document community evolution based on changing conditions within the subsurface. However, the current samples contained a reasonably diverse community structure, including anaerobic and aerobic bacteria that thrive under a wide variety of conditions. In addition, phospholipid fatty acids indicate the presence of *Firmicutes*, a classification of bacteria that includes several anaerobic fermentors, which produce hydrogen gas that serves as the energy source for reductive dechlorinators. *Firmicutes* are indicative of fermenting organisms (mainly clostridia and bacteriodes-like organisms), which fall within this Phylum, and are thus a reasonable indicator of the process. This appears to represent a reasonably healthy, diverse community.

#### 10.3.2.2 Quantitative Polymerase Chain Reaction

The results from the quantitative polymerase chain reaction analysis are presented in Table 10-5.

***Dehalococcoides* spp:** *Dehalococcoides* spp. deoxyribonucleic acid sequences were detected in all four samples from the DPT at location CPT-88-3 and in one of the samples from the DPT at location CPT-88-19. This demonstrates the presence of *Dehalococcoides* spp. at this site and suggests variation in distribution. With respect to cell concentrations, *Dehalococcoides* spp. was detected in the range of  $10^3$  to  $10^4$  cells/mL in three of the four samples from the DPT samples from location CPT-88-3 (soil and groundwater). Levels in the range of  $10^3$  to  $10^4$  cells/mL are considered relatively high for a site that has not been amended with a carbon substrate. For reference, total bacterial cell counts of  $10^3$  to  $10^4$  cells/mL (based on quantitative polymerase chain reaction analysis) are generally considered low to moderate, but since *Dehalococcoides* spp. comprise a small percentage of the total community, *Dehalococcoides* spp. measured at these concentrations may be considered relatively high. *Dehalococcoides* spp. do not use chlorinated VOCs as energy sources for growth, and thus the data suggest the presence of an organic substrate that is supporting microbial activity at least to some extent, and stimulating reductive dechlorinators.

*Dehalococcoides* spp. are the only organisms known to dechlorinate cis-1,2-DCE to VC and prevent buildup of cis-1,2-DCE. Since many organisms are capable of degrading VC, the presence of *Dehalococcoides* spp. provides evidence for the metabolic capability of the system to bring about complete reductive dechlorination of chlorinated ethenes and suggests a low potential for buildup of cis-1,2-DCE, provided that sufficient substrate is present. Thus, while *Dehalococcoides* spp. is clearly present at this site, high levels of cis-1,2-DCE relative to VC indicate that reductive dechlorination may be substrate limited. It is also possible that the native strain is not efficient in the reductive dechlorination of cis-1,2-DCE. This is supported, to some extent, by the functional gene data presented below.

**Functional Genes:** TCE reductase and BAV1 VC reductase are enzymes that are involved in dechlorination of TCE, cis-1,2-DCE, and VC, respectively. It is important to note that the assays

conducted are specific to deoxyribonucleic acid sequences coding for these enzymes from one strain of *Dehalococcoides* spp. While these sequences are believed to be conserved among other strains, this is not currently well understood. In addition, while *Dehalococcoides* spp. are the only known organisms capable of reductively dechlorinating cis-1,2-DCE, a variety of other organisms can carry out reductive dechlorination of TCE and VC. Thus, care must be exercised in interpreting these results.

In general, if high levels of functional genes are detected in conjunction with *Dehalococcoides* spp., it is a positive indicator that the native *Dehalococcoides* spp. strain contains significant metabolic capabilities for reductive dechlorination. However, if high levels are not detected, it is possible that 1) the metabolic capability is weakly represented in the native *Dehalococcoides* spp. strain(s), or 2) native *Dehalococcoides* spp. strains harbor reductases coded by deoxyribonucleic acid sequences that are not detectable via the current methods, but the strains are capable of carrying out reductive dechlorination of TCE, cis-1,2-DCE and VC. Only TCE reductase was detected, in one sample only. Based on the *Dehalococcoides* spp. and the accompanying chlorinated VOC data, this suggests that the latter of these possibilities may be the case. For example, *Dehalococcoides* spp. with adequate metabolic capabilities is present at the site, but the genes coding for the reductases are not readily detectable. Based on the relatively high occurrence of *Dehalococcoides* spp. and the presence of VC, the efficiency in dechlorination of cis-1,2-DCE would likely increase if substrate enhancement is carried out.

### 10.3.3 Conclusions

The biomarker analysis yielded the following general conclusions:

- Results from the phospholipid fatty acid analysis showed that viable biomass is present in quantities that are generally considered to be moderate and would be supportive of enhanced in situ bioremediation or monitored natural attenuation.
- The microbial community appears to be reasonably diverse.
- *Dehalococcoides* spp. were detected at relatively high concentrations for a non-substrate-amended site, and the distribution appears to vary.
- Functional genes were detected at low frequency.
- Although not definitive, the presence of, along with significant amounts of cis-1,2-DCE and trace amounts of VC, suggests that the native *Dehalococcoides* spp. strain is likely substrate limited, but its efficiency in carrying out reductive dechlorination is not known.

Overall, these data suggest that microbial presence/activity would not be a barrier to enhanced in situ bioremediation. In addition, because *Dehalococcoides* spp. are present at the site in relatively high concentrations, this site appears to be a reasonable candidate for biostimulation through substrate addition. However, based on significant cis-1,2-DCE concentrations and the relatively low concentrations of VC, the conversion of cis-1,2-DCE to VC may be initially slow.

#### **10.4 SUBSTRATE SCREENING**

Reductive dechlorination is an enhanced in situ bioremediation mechanism that can be used to destroy chlorinated VOCs in groundwater. This generally involves delivery of an electron donor (organic substrate) to the subsurface to stimulate growth and metabolism of indigenous bacteria, and/or in limited cases, bacteria that are anthropogenically introduced (bioaugmented). Through microbial respiration, sequential electron donor/acceptor reactions occur within the microbial community, creating a reduced, biologically active zone within the subsurface. In this zone, hydrogen gas is produced through fermentation, which serves as the electron donor for bacteria, which carry out reductive dechlorination.

A wide variety of substrates are available for use in enhanced in situ bioremediation, each having various pros and cons in terms of effectiveness, timeframe to achieve remediation goals, and ease in application (Morse et al., 1998). Initial substrate screening has traditionally been conducted through laboratory microcosm studies; however, microcosm studies typically do not adequately represent subsurface conditions in the field, and often, the level of information obtained is not commensurate with the costs and time involved (Air Force Center for Environmental Excellence, Naval Facilities Engineering Service Center, and Environmental Security Technology Certification Program, 2004). The biotrap approach is deployed within a groundwater monitoring well, and thus reflect in situ conditions more accurately than samples that are transferred to the laboratory. The biotrap approach provides cost-effective preliminary information regarding preferred substrate(s) for this site.

##### **10.4.1 Methodology**

Biotraps were installed in monitoring wells W9-20 and W9-46. Biotraps were suspended in groundwater, allowing native bacteria growing within the aquifer to colonize the traps and form biofilms on the traps. The biotraps were baited (impregnated) with various substrates to assess the response of the in situ community (Table 10-6). An unbaited biotrap (containing no substrate) was also included in each well as a control.

The biofilms accumulated on the traps were extracted and analyzed via quantitative polymerase chain reaction for the following:

- Eubacteria (which represents total viable biomass)
- *Dehalococcoides* spp., the only organism known to bring about complete reductive dechlorination of chlorinated VOCs to ethene
- Methanogenic bacteria (methanogens), which provide an indication of the subsurface redox environment

The biofilms were also subjected to phospholipid fatty acid analysis for the following:

- Total viable biomass
- Microbial community structure, denoting percentages of metabolically specific groups of microbes

The data were used to provide preliminary screening information regarding the most effective substrate for enhanced in situ bioremediation for remediation of PCE related to the former Building 88.

#### 10.4.2 Results

Data from phospholipid fatty acids and quantitative polymerase chain reaction analysis of biofilms accumulated on the biotrap indicated that there may be differences in the stimulatory effects of the various substrates tested on the native microbial community. These data are presented and discussed in the following subsections.

##### 10.4.2.1 Phospholipid Fatty Acid Analysis

Phospholipid fatty acids are essential components of the membranes of virtually all living cells, but break down rapidly upon cell death, and thus reflect only viable biomass. Various phospholipid fatty acids are produced by different types of organisms, and thus overall phospholipid fatty acid profiles can be used to “fingerprint” the in situ microbial community. Phospholipid fatty acids can also vary based on environmental conditions. Three different types of information can be obtained from phospholipid fatty acid profiles: biomass, community structure (including identification of general groups of bacteria that carry out various metabolic functions), and physiological status. The following discussions focus on biomass and specific community members as indicators of the potential for reductive dechlorination. Relevant phospholipid fatty acid data are presented in Table 10-7.

**Total Phospholipid Fatty Acid Biomass:** As can be seen in Table 10-7, biomass was generally observed to be at least one order of magnitude higher in baited traps than in control traps. Molasses was the most effective substrate in this regard, with HRC<sup>®</sup> and EHC<sup>™</sup> demonstrating significant effects as well. This does not provide specific information regarding reductive dechlorination, but provides further confirmation that biomass can be effectively stimulated via substrate addition.

**Community Structure:** The groups of interest are the *Firmicutes* and the sulfur-reducing bacteria. *Firmicutes* are indicated by the presence of terminally branched saturated phospholipid fatty acid and include anaerobic fermentors (mainly clostridia/bacterioides-like organisms) that produce the hydrogen required by reductive dechlorinators. Sulfur-reducing bacteria are indicated by the presence of mid-chain branched saturated phospholipid fatty acids, and high percentages are suggestive of strongly reducing conditions (White et al., 1997).

For the biotrap samples installed in groundwater monitoring well W9-20, phospholipid fatty acids indicative of *Firmicutes* were not detected in the control trap but were detected in all other baited traps. Sodium lactate, HRC<sup>®</sup>, and molasses had relatively high percentages of *Firmicutes*, with sodium lactate and HRC<sup>®</sup> having the highest percentages. For the biotrap samples installed in groundwater monitoring well W9-46, phospholipid fatty acid indicative of *Firmicutes* were found at a relatively high percentage in the control trap, but were detected at much higher percentages in traps baited with molasses and HRC<sup>®</sup>. Overall, these data suggest that HRC<sup>®</sup>, molasses, and sodium lactate were most effective in stimulating fermenting bacteria, which generate hydrogen that drives reductive dechlorination.

Phospholipid fatty acids indicative of sulfur-reducing bacteria were not detected in either control trap, but were detected in all baited traps except for the Edible Oil Substrate in monitoring well W9-46. The substrates that showed the greatest propensity for stimulation of sulfur-reducing bacteria (indicative of low redox environments) included HRC<sup>®</sup>, sodium lactate, and molasses, with HRC<sup>®</sup> having the greatest effect in groundwater monitoring well W9-46.

#### 10.4.2.2 Quantitative Polymerase Chain Reaction

The quantitative polymerase chain reaction data allow the assessment of substrates in terms of their ability to stimulate general biomass and *Dehalococcoides* spp., which are both desirable with respect to generating conditions supportive of reductive dechlorination and carrying out the complete metabolic pathway. In addition, the presence of methanogens indicates a low oxidation-reduction potential, but excessive methanogenic activity can compete with reductive dechlorination for substrate and potentially inhibit the process. The results from the quantitative polymerase chain reaction analysis are presented in Table 10-8 and are discussed in the following subsections.

***Dehalococcoides* spp:** *Dehalococcoides* spp. were not detected in any of the traps installed in groundwater monitoring well W9-20 but were detected in two of the traps installed in groundwater monitoring well W9-46. This confirms the presence of, and ability to stimulate, *Dehalococcoides* spp. at this site. However, this does not provide information regarding the distribution of *Dehalococcoides* spp. The traps in which *Dehalococcoides* spp. were detected were baited with sodium lactate and HRC<sup>®</sup>. Both of these compounds are lactate-based, which

suggests that lactate has the potential for stimulating complete reduction of chlorinated VOCs at this site, based on its ability to promote growth of *Dehalococcoides* spp.

**Eubacteria:** Measurement of eubacteria detects deoxyribonucleic acid sequences that are present in essentially all bacteria and thus provides for quantification of the total biomass represented by the complete microbial community. Eubacteria data suggest that total biomass in the baited traps is generally higher than that in the control traps. However, this is not conclusive, as one or more orders of magnitude differences are generally considered indicative of significant differences in bacterial numbers. The highest biomass was measured in the trap baited with HRC<sup>®</sup>, installed in groundwater monitoring well W9-46.

**Methanogenic Bacteria:** The presence/proliferation of methanogenic bacteria indicates the presence of strongly reducing conditions, which are favorable for reductive dechlorination. Methanogenic bacteria were detected in biofilms in all traps installed in both groundwater monitoring wells, including control traps. For groundwater monitoring well W9-20, values from the baited traps did not appear to be elevated over control traps, with the exception of the traps baited with sodium lactate and Edible Oil Substrate. For groundwater monitoring well W9-46, quantities of methanogenic bacteria detected on baited traps were at least one order of magnitude greater than the control trap. This provides some evidence of the occurrence of anaerobic bioprocesses under conditions that support reductive dechlorination.

#### 10.4.3 Conclusions

Data from the biotrap build upon the biomarker data generated in analysis of soil and groundwater, which indicated the presence of viable biomass and *Dehalococcoides* spp. in the subsurface at this site. General conclusions from the biotrap work are as follows:

- All substrates tested demonstrated the ability to stimulate microbial growth.
- Methanogenic populations were elevated in baited traps versus controls, demonstrating the ability to stimulate strongly reducing conditions required for reductive dechlorination.
- Phospholipid fatty acid biomarkers indicative of *Firmicutes* and sulfur-reducing bacteria generally comprised higher percentages of total phospholipid fatty acid in baited traps versus non-baited traps, indicating the ability to stimulate anaerobic processes supportive of reductive dechlorination.
- Lactate-based substrates, and particularly HRC<sup>®</sup>, are potentially the most effective substrate for use in enhanced in situ bioremediation at this site.

Overall, these data support the potential for successful implementation of enhanced in situ bioremediation without bioaugmentation through provision of a lactate-based substrate. However, analysis of microbial biomarkers on baited biotrap does not demonstrate that complete reductive dechlorination will occur. Rather, it provides evidence that the indigenous

community has the potential metabolic capability to bring about the process when provided with a particular substrate.



## 11.0 CONCLUSIONS

This investigation was performed to determine if residual contamination from Building 88 existed, and if present, if such contamination was contributing tetrachloroethene (PCE) contamination to the shallow groundwater.

### 11.1 INTERPRETED GEOLOGY AND HYDROSTRATIGRAPHY

The subsurface beneath the Building 88 investigation area is characterized by interbedded coarse-grained soil (sands and gravels) and fine-grained soil (silts and clay). The distribution of coarse-grained and fine-grained soil differ based on location and depth. Coarse-grained soil, where continuous, trends north-south.

The upper 17 feet of the investigation area contains mostly fine-grained soil, with isolated native coarse-grained deposits. Anastomosing coarse-grained soil channels are observed from approximately 20 feet to approximately 32 feet below ground surface (bgs) and are interbedded with fine-grained overbank deposits. These channels are observed at depth intervals of approximately 20 to 25 feet bgs and 29 to 32 feet bgs, and are encased in fine-grained soil. The channels are depicted as continuous, but these channels could also be a series of laterally and vertically interconnected segments of channels. The thickness of the channels varies spatially, but averages approximately 2 feet. There appears to be little to no single coarse-grained layer vertically connecting these two intervals.

Two relatively continuous channel deposits of coarse-grained soil are observed from approximately 40 to 46 feet bgs and 45 to 52 feet bgs in the western portion of the study area. The channels are depicted as continuous, but these channels could also be a series of laterally and vertically interconnected segments of channels. The deposits range in thickness from approximately 1 to 6 feet and are separated by approximately 1 to 4 feet of silt.

The distribution of coarse-grained and fine-grained sediment layers above approximately 35 feet bgs (analogous to the upper portion of the A aquifer) and below 35 feet bgs (analogous to the lower portion of the A aquifer) suggests two separate fluvial depositional environments. The discontinuous nature of the coarse-grained layers encased in fine-grained soil from surface to 35 feet bgs is typical of a braided fluvial environment. The deposits apparent below 40 feet bgs may be indicative of a floodplain environment. This interpretation of differing hydrogeologic conditions is consistent with what was observed during pump testing, as described in the *West-Side Aquifers Treatment System [WATS] Optimization Completion Report* (Tetra Tech FW [TuFW], 2005c). Based on water levels shown in the upper portion of the A aquifer in December 2004, in the area of WATS extraction well EA2-2 (TuFW, 2005b), there is hydraulic

communication between the lower portion of the A aquifer and the upper portion of the A aquifer.

## **11.2 CLASSIFICATION OF GROUNDWATER**

The majority of the groundwater data clusters together as a high calcium/sulfate water. The data suggest no spatial variance (vertically or laterally) and limited variance in chemical composition. The similarity in water vertically and laterally is interpreted to suggest that there is hydraulic communication vertically and laterally within the A aquifer.

## **11.3 SOURCE EVALUATION AND CONTAMINANT FATE AND TRANSPORT**

For this investigation, soil with PCE concentrations greater than the U.S. Environmental Protection Agency (EPA) Region 9 residential Preliminary Remediation Goal (PRG) of 480 µg/kg (EPA, 2004b) was considered a PCE source area. Two PCE source areas were identified and confirmed during the investigation: the eastern and northern portion of the Building 88 footprint; and the traffic island located at the corner of Cummins Avenue, Cody Road, and Wescoat Road.

### **11.3.1 Former Building 88 Area Soils**

The former dry cleaning facility had numerous wastewater collection trenches, floor drains, subsurface piping and sumps. Whether through cracks in the wastewater collection trenches, floor drains, subsurface piping and/or sump, PCE was released into the subsurface. Releases occurred in two areas: in the area of Sump 66 and in the eastern section of the Building 88 footprint. The maximum PCE concentration in soil samples was collected beneath the Building 88 footprint (6,700 micrograms per kilogram [µg/kg]), located in the area of Sump 66. There is de minimus soils contamination found in the southern and western portion of the Building 88 footprint.

The majority of PCE soil contamination greater than the residential soils PRG of 480 µg/kg is relatively shallow. Soil with PCE concentrations greater than 480 µg/kg extends to a maximum depth of approximately 35 feet bgs in the Sump 66 vicinity. It ranges from 20 to 32 feet bgs along a former floor drain line upstream of Sump 66 and approximately 20 feet bgs underlying the northern excavation area. Shallow PCE contamination in soil in the Building 88 area does not extend laterally much farther than the building footprint. The estimated volume of soil with PCE concentrations greater than 480 µg/kg within the Building 88 area is 775 cubic yards. The estimated mass of PCE in the soil concentrations greater than 480 µg/kg within the Building 88 area is 2.5 pounds.

### 11.3.2 Traffic Island Area Soils

The bulk of the soil contamination at the traffic island area (at concentrations greater than the residential soils PRG) is centered in the area of an apparent historic leak from the sewer at or downstream from a 90° bend at the traffic island at the intersection of Wescoat Road, Cody Road, and Cummins Avenue. The sewer was the discharge for wastewater from the Building 88's Sump 66. PCE contamination at the traffic island appears to have migrated vertically downward and laterally along the sewer trench to the north. The PCE soil contamination greater than the residential soils PRG of 480 µg/kg extends vertically to about 70 feet bgs below the leak in the sewer. The volume of PCE-contaminated soils at concentrations greater than 480 µg/kg in the traffic island area is calculated to be 12,400 cubic yards. The estimated mass of PCE in the soil concentrations greater than 480 µg/kg in the traffic island area is calculated to be 32 pounds.

### 11.3.3 Building 88 Area Groundwater

PCE concentrations in groundwater samples collected beneath the Building 88 area range from less than the laboratory reporting limit of 0.5 micrograms per liter (µg/L) to a high estimated value of 2,100 µg/L. In general, in the southern and western portion of the Building 88 footprint, PCE concentrations are less than 20 µg/L in the upper 30 feet bgs (upper portion of the A aquifer), and less than the EPA Region 9 drinking water Maximum Contaminant Level of 5 µg/L in samples collected from below 30 feet bgs (lower portion of the A aquifer).

In the eastern portion of the Building 88 footprint and in the area of Sump 66, PCE concentrations in groundwater samples are highest in the upper 15 feet (to a maximum concentration of 1,100 µg/L). The relative magnitude and location of the groundwater contamination to a depth of 20 feet bgs is consistent with the shallow soils contamination found in the eastern portion of Building 88 and in the area of Sump 66. An increase in both PCE concentration and volume of impacted groundwater at 21 to 30 feet bgs may be due to lithology, as there are more permeable soils found at this depth interval.

PCE concentrations in groundwater increase with depth to the north of the Building 88 area at depths greater than 30 feet bgs (lower portion of the A aquifer) to a maximum estimated value of 2,100 µg/L in a groundwater sample collected from 56 to 59 feet bgs. It appears that PCE-contaminated groundwater (possibly as dense non-aqueous phase liquid [DNAPL]), moved vertically downward to about the 20-foot bgs depth underlying the former building. At the 21- to 30-foot bgs depth interval, the PCE-contaminated groundwater moved advectively and/or down-dip to the north, if in DNAPL phase. PCE contamination then found a vertical pathway and moved to the investigated depth of about 60 feet bgs. PCE-contaminated groundwater in the lower A aquifer appears to be moving generally downgradient by advection in the more permeable units. The apparent northeastern localized flow direction may be caused by a combination of lithology (channelization) and pumping of the lower A aquifer.

#### 11.3.4 Traffic Island Area Groundwater

PCE concentrations in groundwater samples collected south (hydraulically upgradient) of the traffic island were less than the PCE MCL of 5 µg/L. Concentrations of PCE in groundwater samples collected from beneath the traffic island ranged from 2,000 µg/L to 15,000 µg/L. PCE concentrations in groundwater decrease to the north.

The PCE groundwater contamination to a depth of 15 feet bgs has an elongated shape, which is likely controlled by the utility corridor underlying Cummins Avenue and Wescoat Road. There is an apparent increase in PCE concentration and decrease in volume of impacted groundwater at the 16- to 20-foot bgs interval, which may be due to encountering native fine-grained soils restricting the movement of PCE contamination. Below a depth of 30 feet bgs, PCE contaminant migration appears to be controlled by the more permeable layers of soil.

It appears that PCE contamination moved vertically down to a depth of about 70 feet bgs below the traffic island and did not fully penetrate a clay layer at this depth. Based on the PCE concentrations measured in this investigation, the vertical movement of contamination in the traffic island was likely a combination of DNAPL and dissolved phase. DNAPL is likely still present and can be detected in field samples in the depth interval of 6 to 20 feet bgs in the traffic island.

#### 11.3.5 Downgradient PCE Plume

The source area for both the upper and lower A aquifer PCE plumes appears to be related to the northern and eastern portion of the Building 88 area, Sump 66, the Sump 66 discharge sewer along Wescoat Road, and at the traffic island along Cummins Avenue. There are two PCE plume lobes within the upper portion of the A aquifer. The lobe to the east is a narrow linear feature along Cummins Avenue. The eastern lobe, found in the shallowest portions of the upper A aquifer, is interpreted to be controlled by the backfill of the utilities along Cummins Avenue. The eastern lobe is about 1,000 feet long and generally less than 50 feet wide. The concentrations of PCE in the eastern lobe of the upper A aquifer decrease to the north, away from the traffic island source area. The highest concentration of PCE within the eastern lobe, downgradient of the traffic island source area, was reported at an estimated concentration of 830 µg/L. The western PCE lobe is approximately 2,000 feet long and from 150 to 250 feet wide. The plume has an elongated shape in a north-south direction, is interpreted to be due to the channelization characteristics of coarse-grained soil, and may be influenced by extraction well pumping from the upper A aquifer. The highest concentration of PCE within the western lobe, downgradient from the former Building 88 source area, was reported at an estimated concentration of 150 µg/L. The total amount of PCE in the upper portion of the A aquifer, including the eastern and western lobes, is calculated to be 48 pounds.

The PCE groundwater plume, as detected in the lower A aquifer is approximately 1,600 feet long and varies from 250 to 500 feet wide. The plume is located immediately west of Hangar 1. The northern edge of the PCE plume is lobate. The highest concentration of PCE within the lower portion of the A aquifer, downgradient of the Building 88 or traffic island areas, was at an estimated concentration of 530 µg/L. The amount of PCE in the lower portion of the A aquifer is calculated to be 70 pounds.

Horizontal migration of PCE-contaminated groundwater from the Building 88 and the traffic island areas appear to be limited in the upper 30 feet by the lack of continuous sand channels. Although shallow (less than 30 feet bgs) PCE concentrations are high within permeable lenses in the Building 88 and traffic island areas, the downgradient concentrations in the upper portion of the A aquifer are significantly lower. It is likely that the lower PCE concentrations in the upper A aquifer downgradient of the source areas are a function of sorption, dispersion, and dilution.

Horizontal migration of PCE-contaminated groundwater from the Building 88 and the traffic island areas appears to be prevalent below 30 feet due to the north-south continuity of sandy soils in the 40- to 46-foot interval and 45- to 52-foot interval of the lower A aquifer influenced by extraction well pumping in the lower A aquifer. Although PCE concentrations at depths greater than about 35 feet bgs are relatively high within lenses in the Building 88 and traffic island areas, the downgradient PCE concentrations in the lower portion of the A aquifer are significantly lower. It is likely that the lower PCE concentrations in the lower A aquifer downgradient of the source areas are a function of sorption, dispersion, and dilution.

There appears to be de minimus PCE impacting the B2 aquifer zone.

## **11.4 TREATABILITY STUDIES**

Soil and groundwater samples were collected to conduct chemical oxidation treatability tests, to evaluate the presence of naturally occurring microorganisms capable of biodegrading chlorinated VOCs, and to assess the response of microorganisms to various substrates.

### **11.4.1 Chemical Oxidation**

The chemical oxidation (Fenton's reagent) study results for groundwater indicated that a 99.7 percent volatile organic compound (VOC) concentration reduction was noted after the lowest treatment condition (one dose). The study results for the soil-water slurry indicate a persistence of PCE (39 percent), cis-1,2-dichloroethene (cis-1,2-DCE) (5 percent), and trichloroethene (TCE) (35 percent) after three dosages, and a slight rebound of PCE and TCE concentrations.

### 11.4.2 Biomarker Analysis

The biomarker analysis yielded the following general conclusions:

- Results from the phospholipid fatty acid analysis showed that viable biomass is present in quantities that are generally considered to be moderate and would be supportive of enhanced in situ bioremediation.
- The microbial community appears to be reasonably diverse.
- *Dehalococcoides* spp. were detected at relatively high concentrations for a non-substrate-amended site, and the distribution appears to vary.
- Functional genes were detected at low frequency.
- Although not definitive, the presence of *Dehalococcoides* spp., along with significant amounts of cis-1,2-DCE and trace amounts of vinyl chloride (VC), suggests that the native *Dehalococcoides* spp. strain is likely substrate limited, but it may not be capable of carrying out reductive dechlorination of cis-1,2-DCE to VC.

Overall, these data suggest that microbial presence/activity would not be a barrier to enhanced in situ bioremediation. In addition, because *Dehalococcoides* spp. is present at the site in relatively high concentrations, this site appears to be a reasonable candidate for biostimulation through substrate addition. However, based on significant cis-1,2-DCE concentrations and the relatively low concentrations of VC, the conversion of cis-1,2-DCE to VC may be initially slow.

### 11.4.3 Substrate Screening

Data from the biotrap build upon the biomarker data generated in analysis of soil and groundwater, which indicated the presence of viable biomass and *Dehalococcoides* spp. in the subsurface at this site. General conclusions from the biotrap work are as follows:

- All substrates tested demonstrated the ability to stimulate microbial growth.
- Methanogenic populations were elevated in baited traps vs. controls, demonstrating the ability to stimulate strongly reducing conditions required for reductive dechlorination.
- Phospholipid fatty acid biomarkers indicative of *Firmicutes* and sulfur-reducing bacteria generally comprised higher percentages of total phospholipid fatty acid in baited traps versus non-baited traps, indicating the ability to stimulate anaerobic processes supportive of reductive dechlorination.
- Lactate-based substrates, particularly HRC<sup>®</sup>, are potentially the most effective substrate for use in enhanced in situ bioremediation at this site.

Overall, these data support the potential for successful implementation of enhanced in situ bioremediation without bioaugmentation through provision of a lactate-based substrate. However, analysis of microbial biomarkers on baited biotrap does not demonstrate that

complete reductive dechlorination will occur. Rather, it provides evidence that the indigenous community has the potential metabolic capability to bring about the process when provided with a particular substrate.

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## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 6-2

### UPPER A AQUIFER PCE CONCENTRATION COMPARISON DECEMBER 2004 AND APRIL 2005 FORMER NAS MOFFETT FIELD MOFFETT FIELD, CA

Well Location	PCE Concentrations December 2004 (µg/L)	PCE Concentrations April 2005 (µg/L)
I4D29A	68	49
WIC-1	10J	12
W29-3	5J	6.5
W29-4	4U	0.5U
W9-46	230	150J

*Notes:*

Bold – Indicates value above method detection limit

*Abbreviations and Acronyms:*

µg/L – micrograms per liter

CA – California

J – estimated value

NAS – Naval Air Station

PCE – tetrachloroethene

U – not detected at or above the laboratory reporting limit (value indicates the reporting limit)

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## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 6-3

**LOWER A AQUIFER PCE CONCENTRATION COMPARISON  
DECEMBER 2004 AND APRIL 2005  
FORMER NAS MOFFETT FIELD  
MOFFETT FIELD, CA**

<b>Well Location</b>	<b>PCE Concentrations December 2004 (µg/L)</b>	<b>PCE Concentrations April 2005 (µg/L)</b>
W9-20	<b>410J</b>	<b>530J</b>
W9SC-15	<b>180</b>	<b>170J</b>
W9SC-3	<b>82</b>	<b>67</b>

*Notes:*

Bold – Indicates value above method detection limit

*Abbreviations and Acronyms:*

µg/L – micrograms per liter

CA – California

J – estimated value

NAS – Naval Air Station

PCE – tetrachloroethene

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## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 8-1

### CPT SOIL CLASSIFICATION FOR CROSS SECTIONS FORMER NAS MOFFETT FIELD MOFFETT FIELD, CA

CPT Description	Model Input *
Clay	CL (clay)
Silty clay	CL (clay)
Clayey silt	ML (silt)
Silt	ML (silt)
Sandy silt	ML (silt)
Silty sand	SM (silty sand)
Sand	SP (poorly graded sand)
Gravelly sand	GP/GM (poorly graded gravel with silt and sand)

**Notes:**

\* Unified Soil Classification System group symbols were used for generalized Rockworks™ 2004 model input.

**Abbreviations and Acronyms:**

CA – California

CPT – cone penetrometer testing

NAS – Naval Air Station

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# FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 10-I

## GROUNDWATER TREATABILITY STUDY RESULTS FORMER NAS MOFFETT FIELD MOFFETT FIELD, CA

Sample ID Catalyst Used Oxidant Used Number of Doses of Treatment	GW/Control None None 0	GW/T-A Cat-4260 H <sub>2</sub> O <sub>2</sub> 1	GW/T-B Cat-4260 H <sub>2</sub> O <sub>2</sub> 2	GW/T-C Cat-4260 H <sub>2</sub> O <sub>2</sub> 3
<b>VOCs (µg/L)</b>				
1,1-Dichloroethene	55.4	U<0.36	U<0.36	U<0.36
1,1-Dichloroethane	24.9	11.4	6.48	3.34
cis-1,2-Dichloroethene	2,990	U<0.30	U<0.30	U<0.30
Trichloroethene	679	U<0.35	U<0.35	U<0.35
Tetrachloroethene	175	0.854	U<0.45	U<0.45
TOTAL VOCs	3,924.3	12.254	6.48	3.34
TOTAL TICs	U	12.6	41	62.4
<b>% Reduction</b>				
Total VOCs	--	99.7%	99.8%	99.9%
Total TICs	--	--	--	--
Final pH Value	6.51	6.56	6.53	6.49

### Notes:

The above list includes the compounds that were detected in at least one sample in the treatability study. The entire list of 37 target compounds analyzed, plus TICs, along with chain-of-custody were provided in Appendix H. All "% reduction" are relative to the "control" sample with assumption of "U" values equal to zero  
Bold – Indicates value above method detection limit for VOC analysis only

### Abbreviations and Acronyms:

µg/L – micrograms per liter  
CA – California  
Cat-4260 – Catalyst 4260  
GW - groundwater  
H<sub>2</sub>O<sub>2</sub> – hydrogen peroxide  
-- – not analyzed (for pH value), or not calculated (for % reduction)  
MDL – method detection limit  
NAS – Naval Air Station  
TIC – tentatively identified compound  
U – not detected at or above the laboratory reporting limit (value indicates the reporting limit)  
VOC – volatile organic compound

# FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 10-2

## SLURRY TREATABILITY STUDY RESULTS FORMER NAS MOFFETT FIELD MOFFETT FIELD, CA

Sample ID Catalyst Used Oxidant Used Number of Doses of Treatment	SL/Control None None 0	SL/T-A Cat-4260 H <sub>2</sub> O <sub>2</sub> 1	SL/T-B Cat-4260 H <sub>2</sub> O <sub>2</sub> 2	SL/T-C Cat-4260 H <sub>2</sub> O <sub>2</sub> 3
<b>VOCs (µg/kg)</b>				
1,1-Dichloroethene	U<5.95	U<5.95	U<5.95	U<5.95
1,1-Dichloroethane	U<5.95	U<5.95	U<5.95	U<5.95
cis-1,2-Dichloroethene	922	116	56	49
Trichloroethene	637	298	200	226
Tetrachloroethene	109	47	36	42
<b>TOTAL VOCs</b>	<b>1,668</b>	<b>461</b>	<b>292</b>	<b>317</b>
<b>TOTAL TICs</b>	<b>U</b>	<b>U</b>	<b>U</b>	<b>U</b>
<b>% Reduction</b>				
Total VOCs	--	72.4%	82.5%	81.0%
Total TICs	--	--	--	--
Final pH Value	6.99	6.74	6.87	7.32

### Notes:

The above list includes the compounds that were detected in at least one sample in the treatability.

The entire list of 37 target compounds analyzed, plus TICs, along with chain-of-custody were provided in Appendix H.

All “% reduction” are relative to the “control” sample with assumption of “U” values equal to zero.

Bold - Indicates value above method detection limit for VOC analysis only

### Abbreviations and Acronyms:

µg/kg – micrograms per kilogram

CA – California

Cat-4260 – Catalyst 4260

H<sub>2</sub>O<sub>2</sub> – hydrogen peroxide

-- – not analyzed (for pH value), or not calculated (for % reduction)

MDL – method detection limit

NAS – Naval Air Station

TIC – tentatively identified compound

U – not detected at or above the laboratory reporting limit (value indicates the reporting limit)

VOC – volatile organic compound

# FORMER BUILDING 88 INVESTIGATION REPORT

TABLE I0-3

## VOC CONCENTRATIONS ANALYSIS FOR BIOMARKER SAMPLES FORMER NAS MOFFETT FIELD MOFFETT FIELD, CA

Sample Location and Depth Interval (feet bgs)	Matrix	VOC Concentrations (µg/L for groundwater; µg/kg for soil)			
		PCE	TCE	cis-1,2-DCE	VC
CPT-88-3 (10-14)	Groundwater	300	700	1,500	1.7
CPT-88-3 (46-48)	Groundwater	11	1,700	160	0.44J
CPT-88-3 (12-13)	Soil	3500	1,800	1,300	6U
CPT-88-3 (46.5-47.5)	Soil	2.5	310	14	6U
CPT-88-19 (6-9)	Groundwater	830	450	440	0.91
CPT-88-19 (47-50)	Groundwater	130	1,400	53	0.5U
CPT-88-19 (6-7)	Soil	540	280	300	6U
CPT-88-19 (48-49)	Soil	16	190	6.8	6U

### Notes:

Bold – Indicates value above method detection limit

### Abbreviations and Acronyms:

µg/kg – micrograms per kilogram

µg/L – micrograms per liter

bgs – below ground surface

CA – California

cis-1,2-DCE – cis-1,2-dichloroethene

J – estimated value

NAS – Naval Air Station

PCE – tetrachloroethene

TCE – trichloroethene

U – not detected at or above the laboratory reporting limit (value indicates reporting limit)

VC – vinyl chloride

VOC – volatile organic compound

# FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 10-4

## RESULTS OF PHOSPHOLIPID FATTY ACIDS ANALYSIS FOR TOTAL VIABLE BIOMASS AND PHYSIOLOGICAL STATUS MARKERS FORMER NAS MOFFETT FIELD MOFFETT FIELD, CA

Sample Location And Depth Interval (feet bgs)	Matrix	Total Biomass (cells/mL or g)	Slowed Growth Index <sup>a</sup>	Permeability Index <sup>b</sup>
CPT-88-3 (46-48)	Groundwater	1.92E+06	NS	0.30
CPT-88-3 (10-14)	Groundwater	9.94E+05	0.14	0.37
CPT-88-3 (12-13)	Soil	6.00E+06	0.45	0.15
CPT-88-3 (47-48)	Soil	1.57E+05	NS	NS
CPT-88-19 (6-9)	Groundwater	1.04E+06	0.90	0.24
CPT-88-19 (47-50)	Groundwater	2.31E+06	0.04	0.31
CPT-88-19 (6-7)	Soil	5.19E+05	1.77	NS
CPT-88-19 (48-49)	Soil	9.54E+04	NS	NS

### Notes:

<sup>a</sup> Slow Growth Index – Ratio of the amount of specific phospholipid fatty acids produced in response to starvation or slow growth conditions to the amount produced under favorable normal conditions

<sup>b</sup> Permeability Index – Ratio of the amount of specific phospholipid fatty acids produced in response to toxic conditions to the amount produced under normal conditions

### Abbreviations and Acronyms:

bgs – below ground service

CA – California

g – grams

mL – milliliter

NAS – Naval Air Station

NS – physiological status markers not detected

# FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 10-5

## RESULTS OF QUANTITATIVE POLYMERASE CHAIN REACTION ANALYSIS FOR DHC AND FUNCTIONAL GENES FORMER NAS MOFFETT FIELD MOFFETT FIELD, CA

Sample Location And Depth Interval (feet bgs)	Matrix	Units	DHC spp.	BAV1 VC R-Dase	TCE R-Dase
CPT-88-3 (46-48)	Groundwater	cells/mL	2.23E+01	<1.43E+00	<1.43E+00
CPT-88-3 (10-14)	Groundwater	cells/mL	2.22E+04	<8.67E+02	3.97E+03
CPT-88-3 (12-13)	Soil	cells/g	2.16E+04	<8.85E+02	<8.85E+02
CPT-88-3 (47-48)	Soil	cells/g	1.45E+03	<9.56E+02	<9.56E+02
CPT-88-19 (6-9)	Groundwater	cells/mL	<5.95E-01	<5.95E-01	<5.95E-01
CPT-88-19 (47-50)	Groundwater	cells/mL	<5.49E-01	<5.49E-01	<5.49E-01
CPT-88-19 (6-7)	Soil	cells/g	<9.84E+02	<9.84E+02	<9.84E+02
CPT-88-19 (48-49)	Soil	cells/g	9.72E+02	<8.87E+02	<8.87E+02

### Notes:

BAV1 is a species of DHC.

### Abbreviations and Acronyms:

bgs – below ground surface  
 CA – California  
 DHC – *Dehalococcoides* spp.  
 g – grams  
 mL – milliliter  
 NAS – Naval Air Station  
 spp. – species  
 TCE R-Dase – trichloroethene reductase  
 VC R-Dase – vinyl chloride reductase

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## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 10-6

### BIOTRAP SUBSTRATES FORMER NAS MOFFETT FIELD MOFFETT FIELD, CA

Substrate	Description	Vendor
Sodium lactate	Reagent-grade, from soluble substrate	JT Baker
Molasses	Soluble substrate	Generic
HRC <sup>®</sup>	Viscous fluid, proprietary formulation - slowly releases lactate upon hydration	Regenesis
Vegetable Oil	Viscous fluid, proprietary formulation - EOS	Solutions IES
EHC <sup>™</sup>	Solid (can be delivered as pellets, granules, flowable powders, or slurries), consists of plant-based carbon in conjunction with zero-valent iron	Adventus Americas
None	Control	N/A

#### Notes:

An unbaited trap (containing no substrate) was deployed in each well as a control along with baited traps.

EHC<sup>™</sup> is a substrate name.

Beads are 2-3 mm in diameter.

#### Abbreviations and Acronyms:

CA – California

EOS – Edible Oil Substrate

HRC<sup>®</sup> – Hydrogen Release Compound

mm – millimeter

N/A – not applicable

NAS – Naval Air Station

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# FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 10-7

## SELECTED RESULTS OF PHOSPHOLIPID FATTY ACIDS ANALYSIS FOR BAITED BIOTRAPS FORMER NAS MOFFETT FIELD MOFFETT FIELD, CA

Well Number	Matrix	Biomass (cells/bead)	<i>Firmicutes</i> <sup>1</sup> (% of total PLFA)	Sulfur-reducing Bacteria <sup>2</sup> (% of total PLFA)
W9-20	Sodium Lactate	4.27E+05	17.51	1.68
W9-20	Molasses	3.89E+06	13.93	1.55
W9-20	HRC®	2.46E+06	16.91	3.88
W9-20	EHC™	2.3E+06	3.16	0.51
W9-20	EOS	9.36+05	6.43	3.15
W9-20	Control	3.1E+04	0.00	0.00
W9-46	Sodium Lactate	7.24E+05	16.19	3.51
W9-46	Molasses	1.12E+07	28.16	5.50
W9-46	HRC®	2.51E+06	38.84	21.84
W9-46	EHC™	2.01E+06	9.03	2.14
W9-46	EOS	1.05E+06	4.74	0.00
W9-46	Control	1.31E+05	16.48	0.00

### Notes:

<sup>1</sup> As indicated by the presence of terminally branched saturated phospholipid fatty acid – high percentages indicate the presence of bacteria classified as *Firmicutes*, which include anaerobic fermentors (mainly clostridia/bacterioides-like organisms) that produce hydrogen required by reductive dechlorinators.

<sup>2</sup> As indicated by the presence of mid-chain branched saturated phospholipid fatty acid, which are common in sulfur-reducing bacteria – high percentages indicate the proliferation of sulfur-reducing bacteria and thus, are suggestive of strongly reducing conditions.

Beads are 2-3 mm in diameter.

### Abbreviations and Acronyms:

CA - California  
EOS – Edible Oil Substrate  
HRC® – Hydrogen Release Compound  
mm – millimeter  
NAS – Naval Air Station  
PLFA – phospholipids fatty acid

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# FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 10-8

## RESULTS OF QUANTITATIVE POLYMERASE CHAIN REACTION ANALYSIS FOR BAITED BIOTRAPS FORMER NAS MOFFETT FIELD MOFFETT FIELD, CA

Well	Substrate	Units	DHC	Eubacteria	Methanogens
W9-20	Sodium Lactate	cells/bead	<2.5E+01	2.97E+07	1.3E+05
W9-20	Molasses	cells/bead	<2.5E+01	6.63E+07	6.29E+04
W9-20	HRC <sup>®</sup>	cells/bead	<2.5E+01	4.8E+07	9.53E+04
W9-20	EHC <sup>™</sup>	cells/bead	<2.5E+01	1.19E+07	4.86E+04
W9-20	EOS	cells/bead	<2.5E+01	4.29E+07	8.76E+05
W9-20	Control	cells/bead	<2.5E+01	1.4E+07	5.29E+04
W9-46	Sodium Lactate	cells/bead	1.45E+02	2.17E+07	4.75E+05
W9-46	Molasses	cells/bead	<2.5E+01	7.17E+07	2.29E+06
W9-46	HRC <sup>®</sup>	cells/bead	4.52E+01	8.18E+07	1.12E+06
W9-46	EHC <sup>™</sup>	cells/bead	<2.5E+01	1.25E+07	3.09E+05
W9-46	EOS	cells/bead	<2.5E+01	4.07E+07	2.51E+06
W9-46	Control	cells/bead	<2.5E+01	1.67E+07	9.68E+04

### Abbreviations and Acronyms:

CA – California

DHC – *Dehalococcoides* spp.

HRC<sup>®</sup> – Hydrogen Release Compound

EOS – Edible Oil Substrate

NAS – Naval Air Station

spp. – species

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**APPENDIX A**  
**PROJECT PHOTOGRAPHS**

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**APPENDIX B**

**ANALYTICAL RESULT REPORTS AND  
CHAIN-OF-CUSTODY DOCUMENTATION**

**(Provided on CD)**

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## **APPENDIX C**

### **LOCATION SURVEY DATA**

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**APPENDIX D**

**CONTINUOUS CORE BORING PERMIT,  
CONTINUOUS CORE LITHOLOGIC LOGS,  
MONITORING WELL BORING AND CONSTRUCTION LOGS,  
AND MONITORING WELL DEVELOPMENT LOGS**

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**APPENDIX E**

**CONE PENETROMETER TEST**

**BORING PERMITS AND LITHOLOGIC LOGS**

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**APPENDIX F**

**LOW-FLOW GROUNDWATER  
SAMPLING DATA SHEETS**

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**APPENDIX G**

**QUALITY ASSURANCE/  
QUALITY CONTROL REPORT**

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**APPENDIX H**

**ISOTEC LABORATORY TREATABILITY  
STUDY REPORT**

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**APPENDIX I**

**MICROBIAL INSIGHTS TREATABILITY  
STUDY REPORT**

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# APPLICATION TO DRILL EXPLORATORY BORINGS

PC 285 (04-29-02)

Santa Clara Valley Water District

5750 Almaden Expressway, San Jose, CA 95118-3614

Page 1 of 2

Date Issued:

3-31-05

Expiration Date:

10-1-05

District Permit No.:

05E00073

Client (if different from property owner): <b>U.S. Navy</b>	Property Owner: <b>NASA</b>	Name of Business/Residence at Site: <b>Former NAS Moffett Field</b>
Client's Address: <b>1220 Pacific Highway</b>	Property Owner's Address: <b>NASA M/S 218-1</b>	Address of Site: <b>Former Building # 88</b>
City, State, Zip: <b>San Diego, CA 92132-6190</b>	City, State, Zip: <b>Moffett Field, CA 94035</b>	City, State, Zip: <b>Moffett Field, CA 94035</b>
Telephone No.: <b>Rick Weissenhorn 619-532-0952</b>	Telephone No.: <b>Don Chuck 650-604-0237</b>	Assessor's Parcel Number of Site: <b>Book: 116 Page: 18 Parcel: 008</b>
Consulting Company Name: <b>Tetra Tech FW, Inc.</b>		Drilling Company Name: <b>GREGG DRILLING</b>
Address: <b>1230 Columbia Street, Suite 500</b>		Address: <b>950 Howe</b>
City, State, Zip: <b>San Diego, CA 92101</b>		City, State, Zip: <b>MARINEZ CA 94553</b>
Telephone No.: <b>Andy Budas 619-471-3509</b>		Telephone: <b>925 313 5800</b>
<input type="checkbox"/> Check if address or phone number has changed.		<input type="checkbox"/> Check if address or phone number has changed.

In space at right sketch location of proposed boring(s) in sufficient detail to identify location in addition to distances to nearest street and intersection. Show distances to any existing structures, landmarks or topographic features.

How many borings will be installed on parcel?  
**11**

- ☐ Proposed borings on SCVWD property Easement\*
- ☐ Proposed boring within 50 feet of the top of a creek/river bank\*

\* See Page 2, Condition F.

Proposed depth of boring(s).

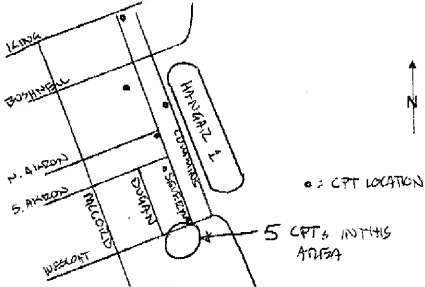
- ☒ 45 to 150 feet
- ☐ 151 to 300 feet
- ☐ Over 300 feet

NOTE:  
NO PERMIT IS  
REQUIRED FOR  
BORINGS UNDER  
45 FEET DEEP

Type of boring(s):

- ☐ Non-flow stem
- ☐ Rotary
- ☐ Air-rod-propelled
- ☐ Other

SITE PLAN - PLEASE DRAW ACCURATELY  
(No separate attachments, please)



I warrant that all work is to be done in accordance with S.C.V.W.D. Ordinance 90-1, "The District Well Standards," and the conditions of this permit (see page 2). I also certify that the information given above is correct. NOTE: All applicable signatures must be present before permit will be processed.

Signature of Property Owner/Agent: <b>Donald M. Chuck</b>	Print/Type Name: <b>Donald M. Chuck</b>	Date: <b>3/21/05</b>
Signature of Client/Agent: <b>Wilson Doctor</b>	Print/Type Name: <b>Wilson Doctor</b>	Date: <b>3/17/05</b>
Signature of Driller/Agent: <b>LARRY DODDS</b>	Print/Type Name: <b>LARRY DODDS</b>	Date: <b>3/17/05</b>
Signature of Consultant: <b>LARRY DODDS</b>	Print/Type Name: <b>LARRY DODDS</b>	Date: <b>3/17/05</b>

**IMPORTANT:** A minimum 24-hour notice must be given to SCVWD Well Intersection Dept. prior to installing the annular seal. Call (408) 265-2807, Ext. 2060. For weekends, holidays, and after hours call (408) 265-2607, extension 2120.

Santa Clara Valley Water District

## EXPLORATORY BORING(S) CONSTRUCTION PERMIT

FC 285 (04-29-02)

Page 2 of 2

## GENERAL CONDITIONS

- A. SCWWD (Telephone 408-265-2607, Ext. 2860) MUST BE NOTIFIED A MINIMUM OF ONE WORKING DAY BEFORE THE EXPLORATORY BORING IS BACKFILLED. An authorized District representative must be on site to witness the sealing operation. This requirement may be waived by an authorized District representative. If the District waives the inspection requirement, the District may request the Permittee(s) to furnish certification under penalty of perjury that the seal was constructed in accordance with the District Well Standards.
- B. This Permit is valid only for the purpose specified herein. Boring destruction methods authorized under this Permit may not be changed except by written approval of an authorized District representative, and only if the District believes that such a change will result in equal or superior compliance with the District and State Well Standards (e.g. If the District representative finds that site conditions warrant such a change).
- C. This Permit is only valid for the Assessor's Parcel Number indicated on it.
- D. This Permit may be voided if it contains incorrect information.
- E. Borings shall be sealed within 24 hours following completion of testing or sampling activities. Borings shall not be left in such a condition as to allow for the introduction of surface waters or foreign materials into them. Borings shall be secured such that they do not endanger public health.
- F. If any work associated with this Permit will take place within 50 feet of the top of the banks of a stream or watercourse, or on SCWWD property, an encroachment or construction permit must be granted by the District's Community Projects Review Unit (telephone (408) 265-2607, Ext. 2350, 2217, or 2253).
- G. The Permittee(s) shall assume entire responsibility for all activities and uses under this Permit and shall indemnify, defend, and hold the District, its officers, agents, and employees free and harmless from any and all expense, cost, and liability in connection with or resulting from the granting or exercise of this Permit including, but not limited to, property damage, personal injury, and wrongful death.
- H. Permittees are required to be in full compliance with Cal/OSHA California Labor Code Section 5300.
- I. A current C-57 or C-61 Contractors License is required for work associated with this Permit.
- J. Permittee, permittee's contractors, consultants or agents shall be responsible to assure that all materials or waters generated during drilling, boring destruction, and/or other activities associated with this Permit will be safely handled, properly managed, and disposed of according to all applicable federal, state, and local statutes regulating such. In no case shall these materials and/or waters be allowed to enter, or potentially enter, on- or off-site storm sewers, dry wells, or waterways or be allowed to move off the property until the work is being completed.
- K. Employer and consultant (if applicable) shall have an active copy of their Worker's Compensation Insurance on file with the District.
- L. This Permit shall expire if not exercised within 180 calendar days of its approval, unless an extension of the Permit expiration date is granted by an authorized District representative.
- M. This Permit shall be kept on-site during the completion of all activities associated with it and shall immediately be presented to an authorized District representative upon request.

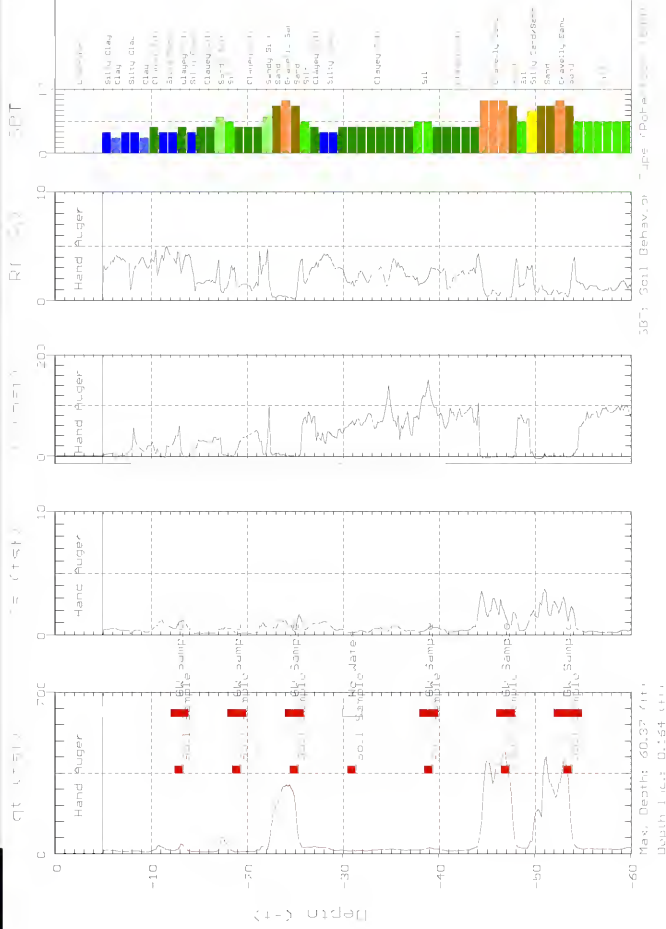
Permit Approved By:

Date:

3-31-05

PLEASE ALLOW TEN (10) WORKING DAYS TO PROCESS THIS APPLICATION



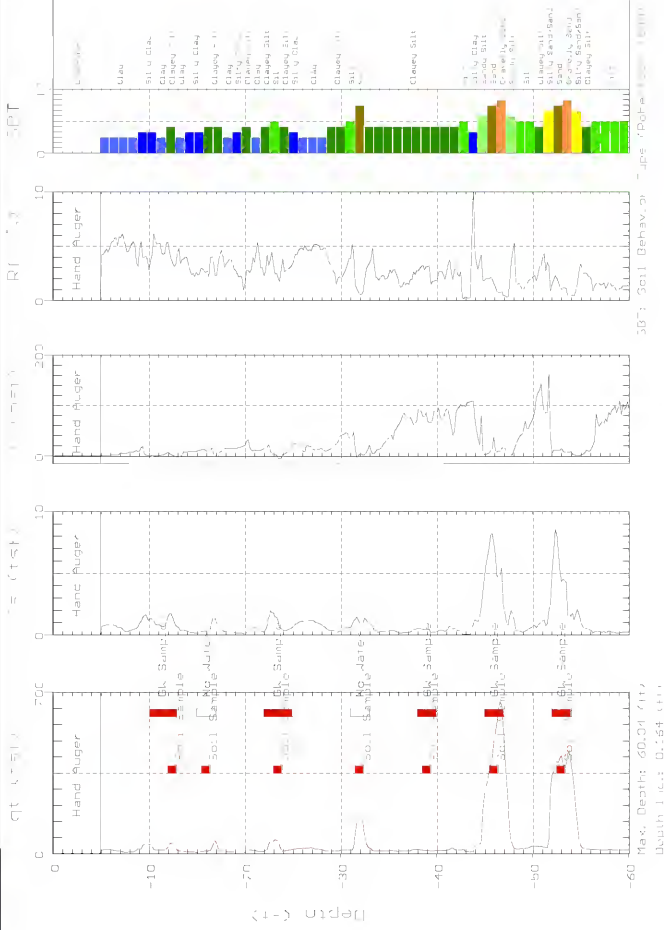


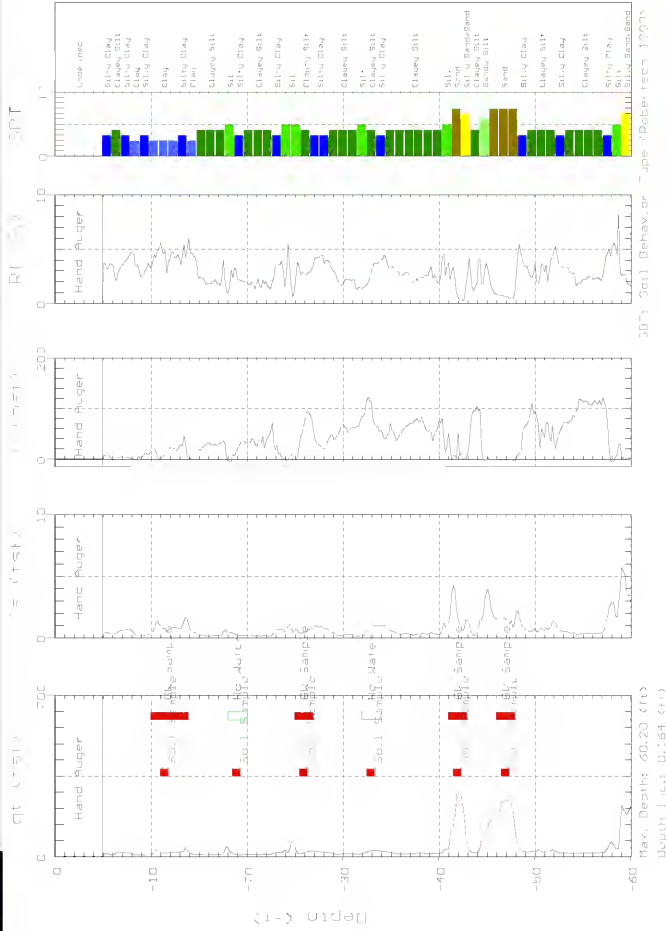


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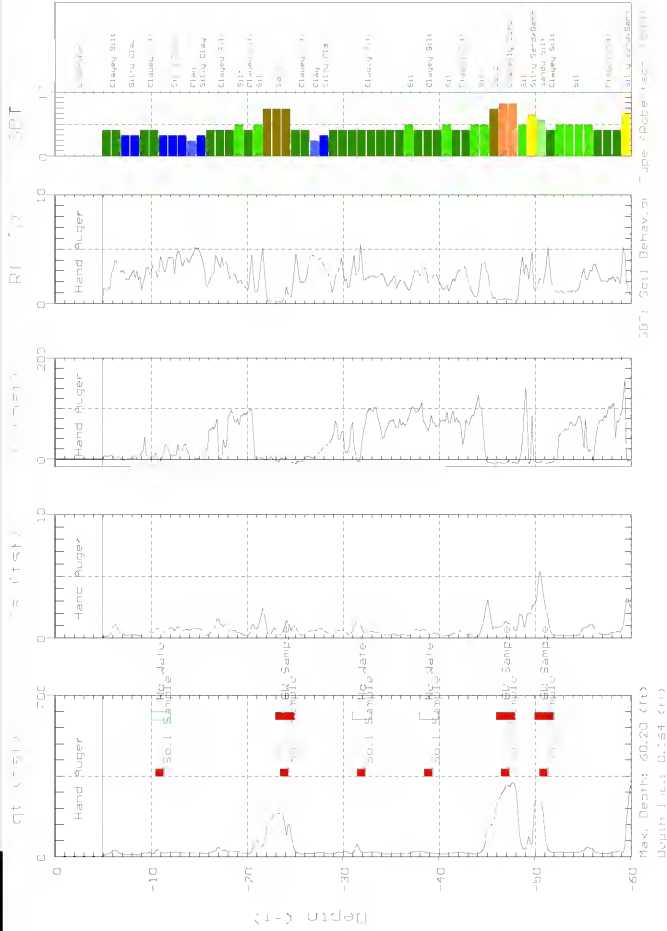




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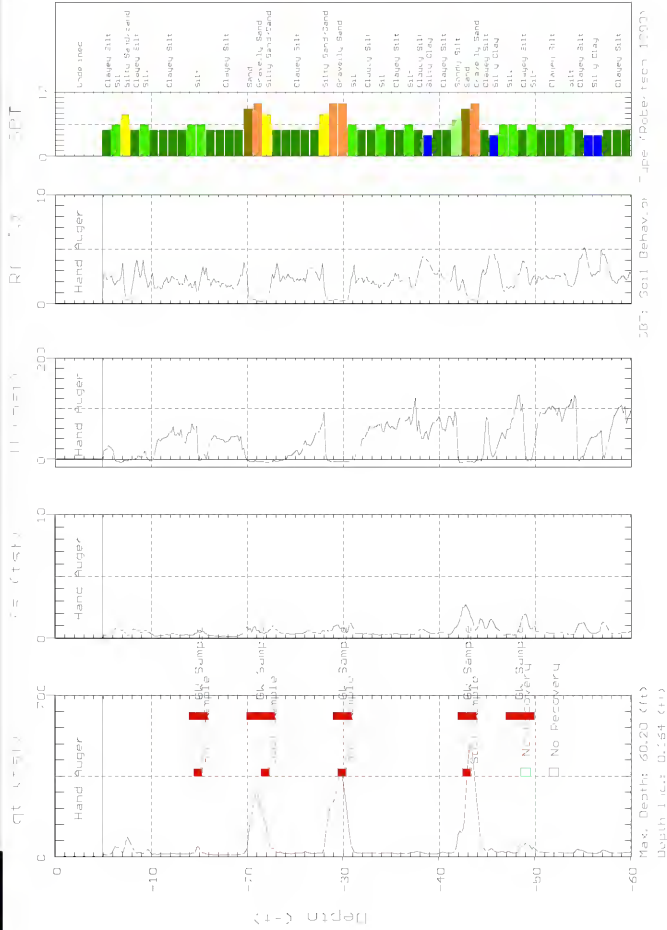
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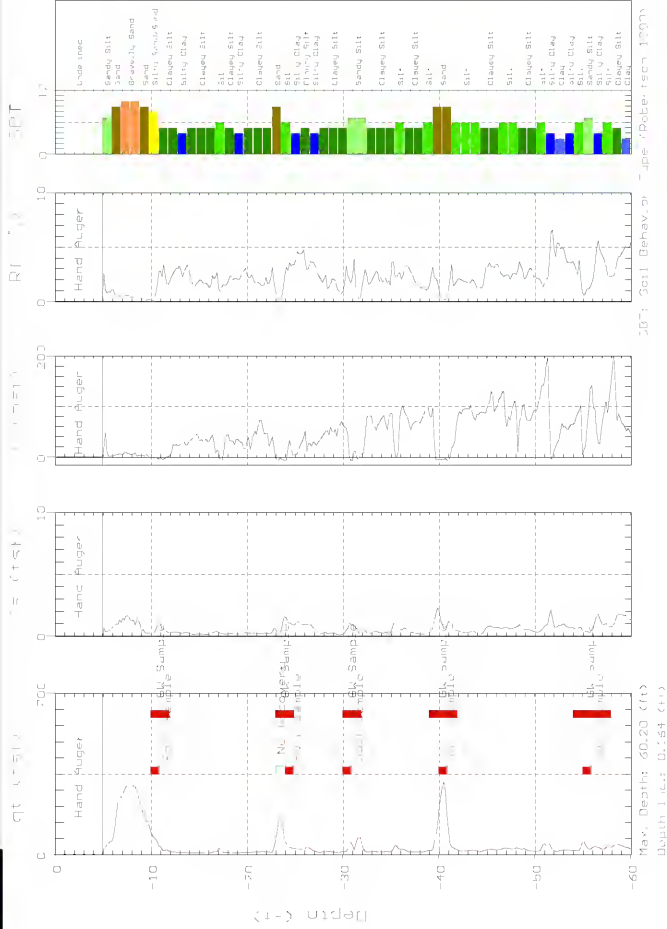


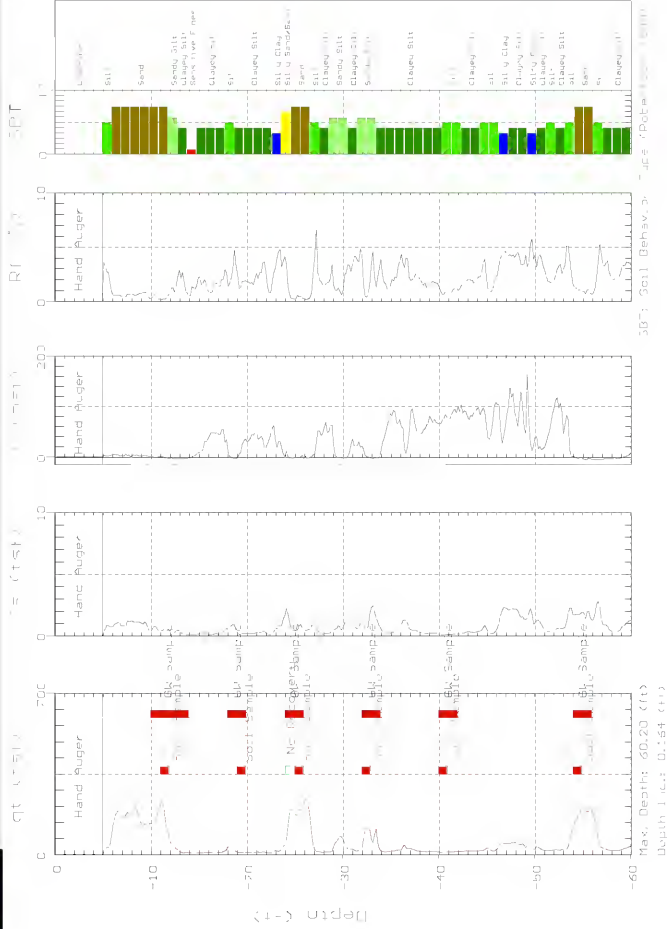


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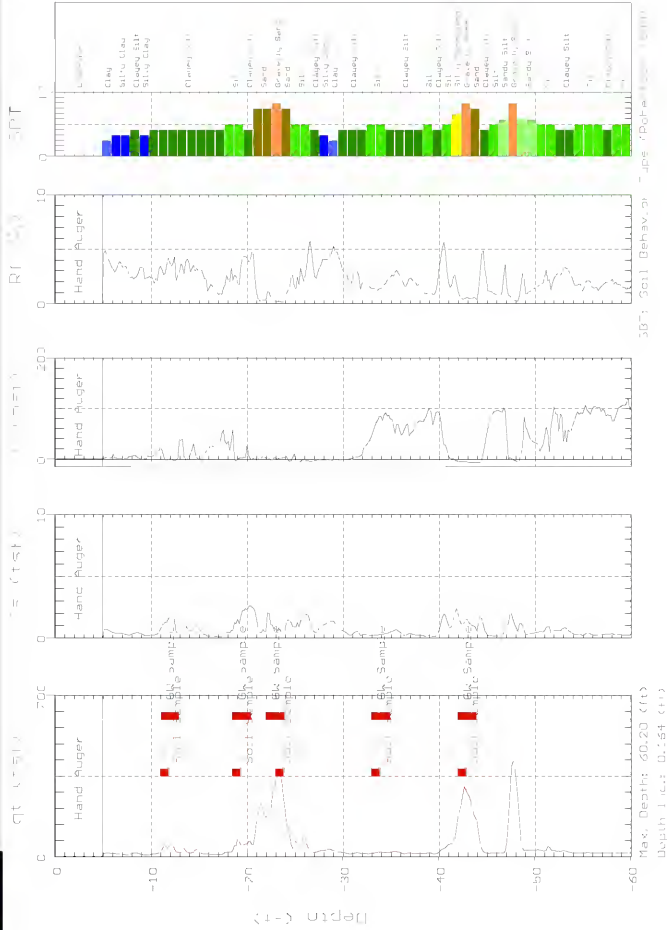

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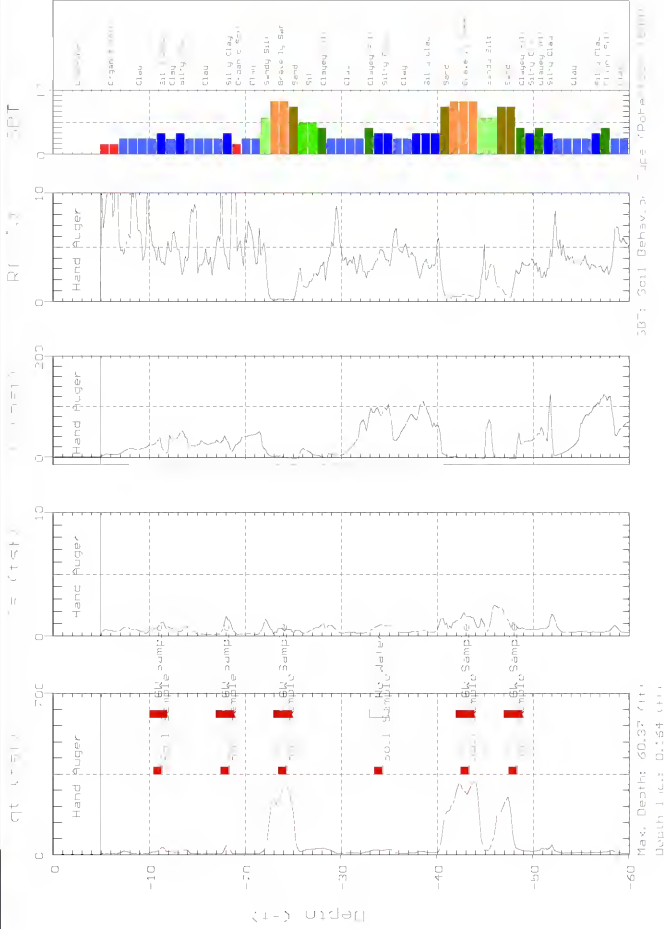
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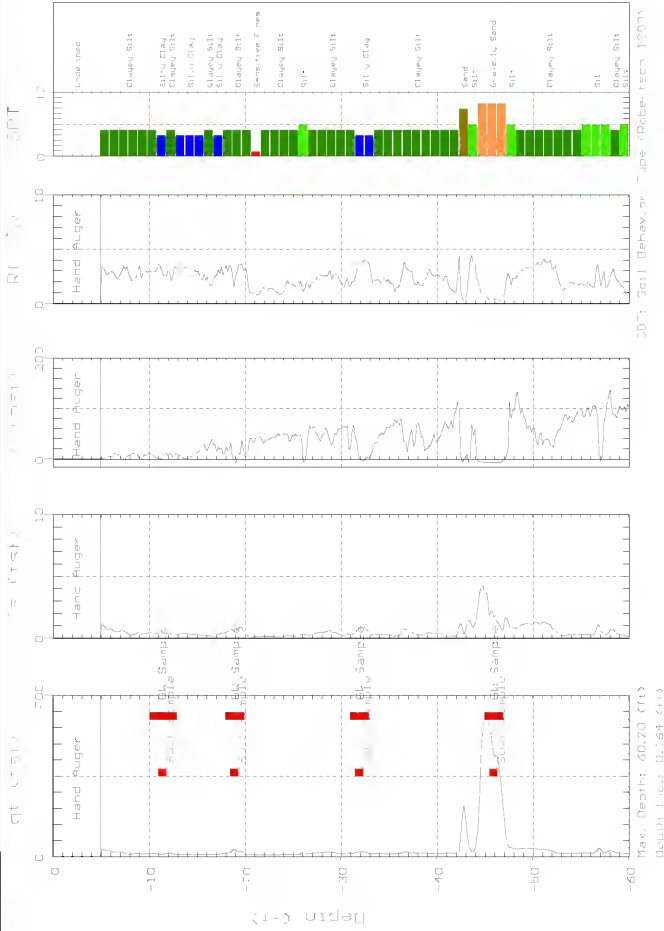
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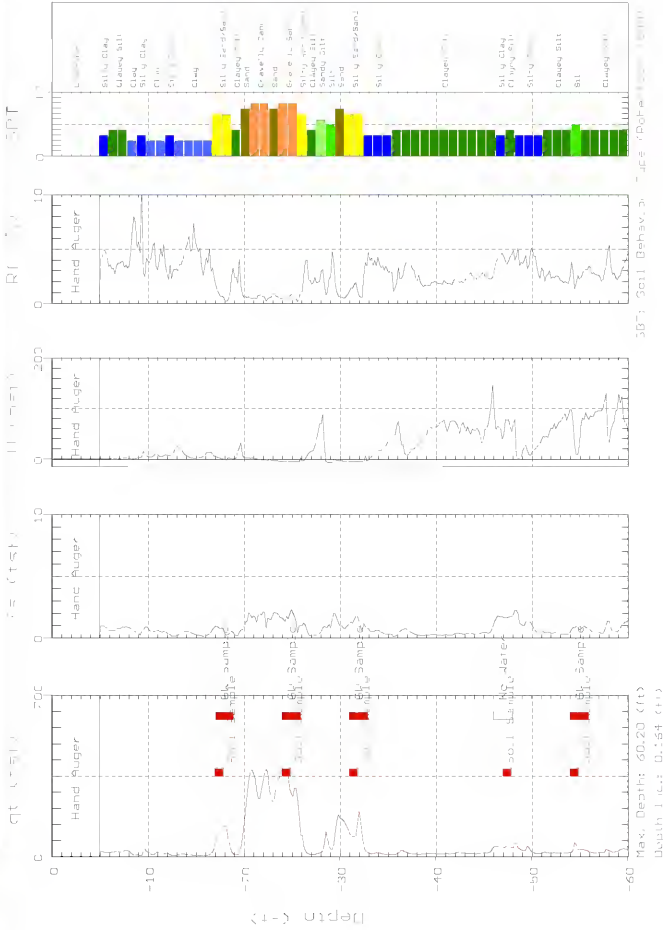




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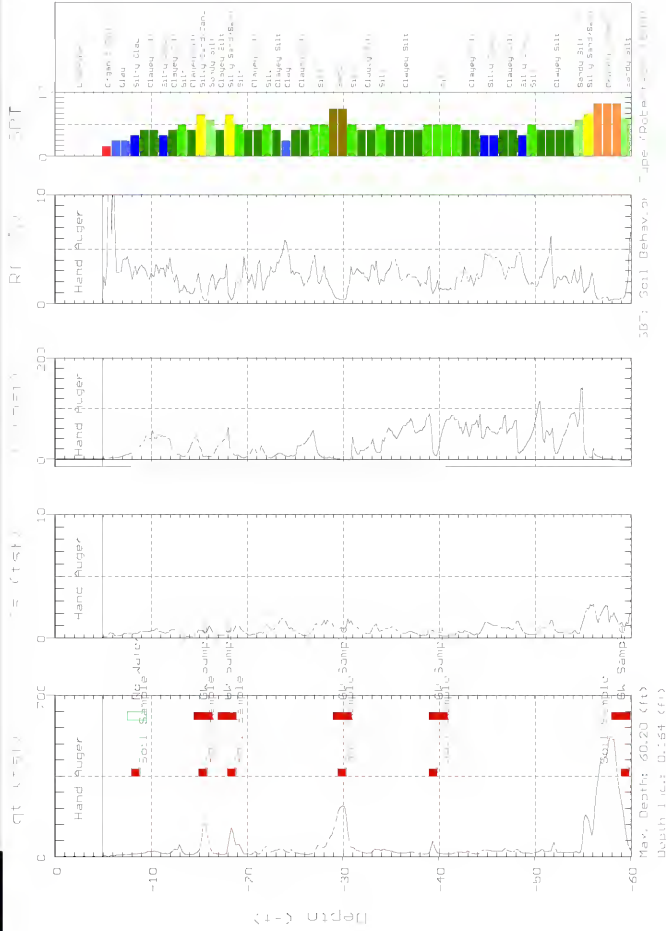
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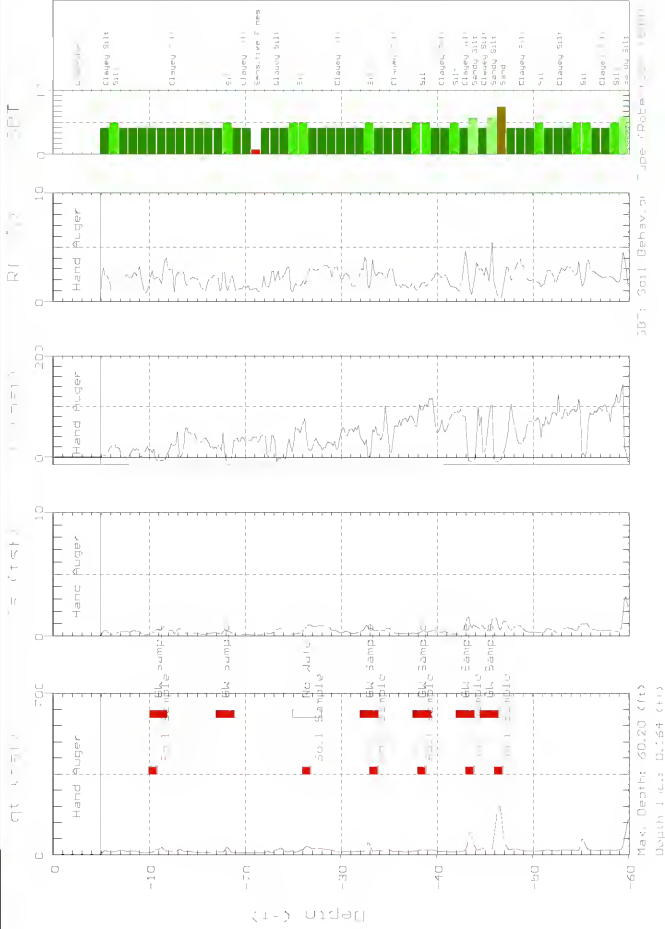


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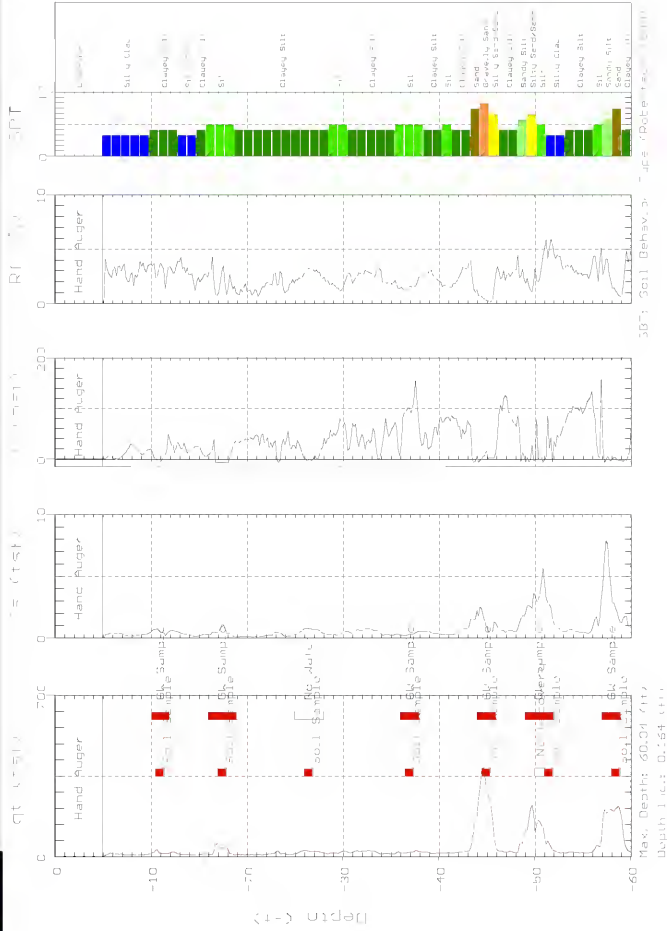


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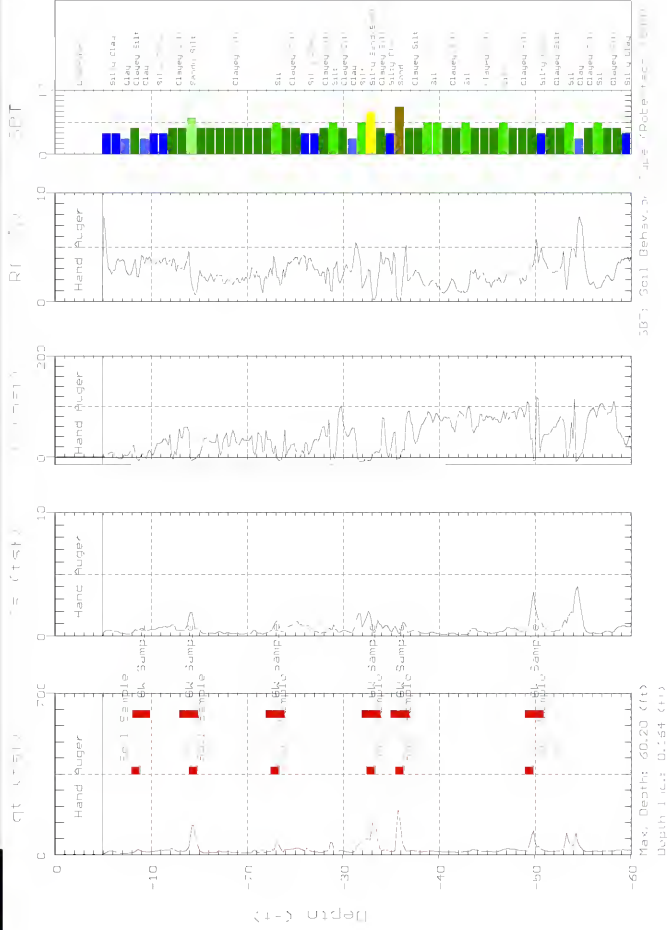


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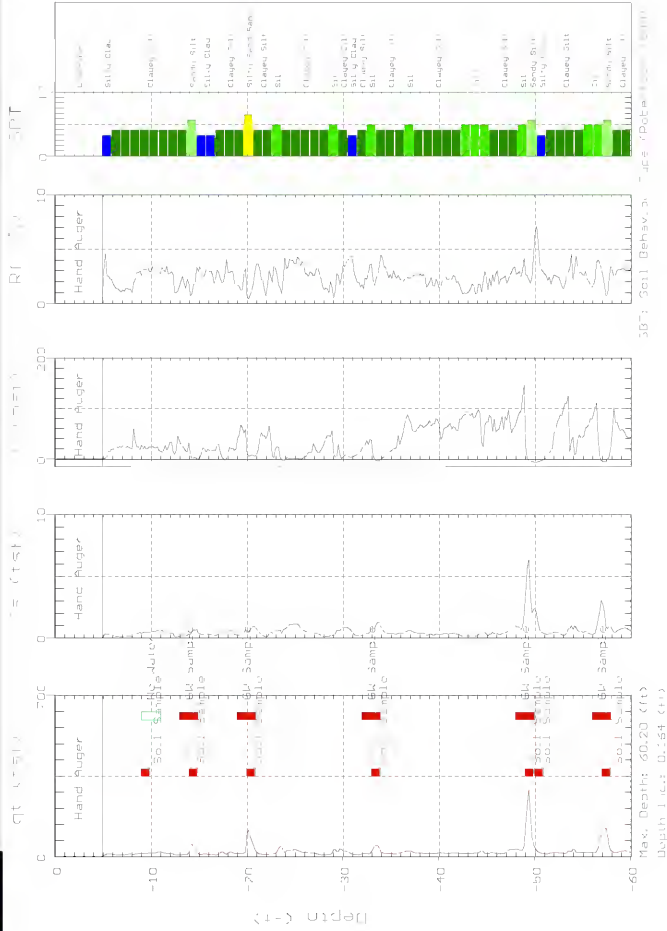
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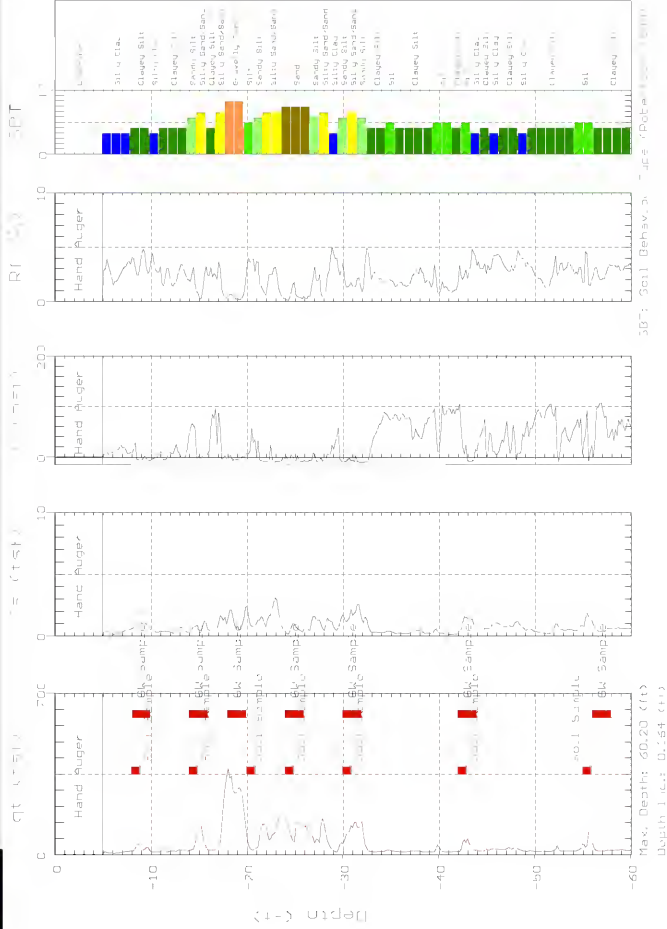


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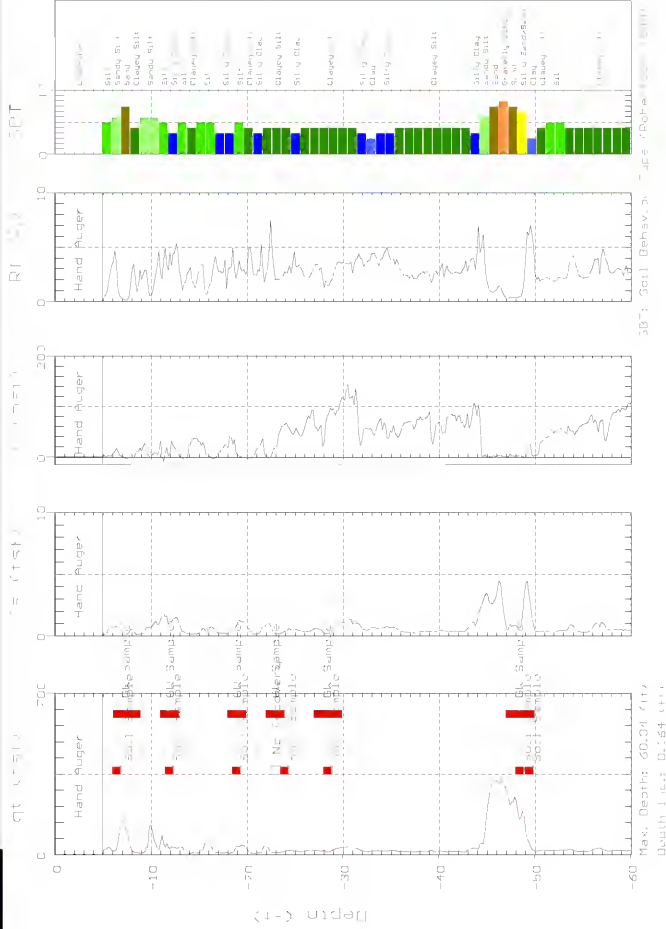


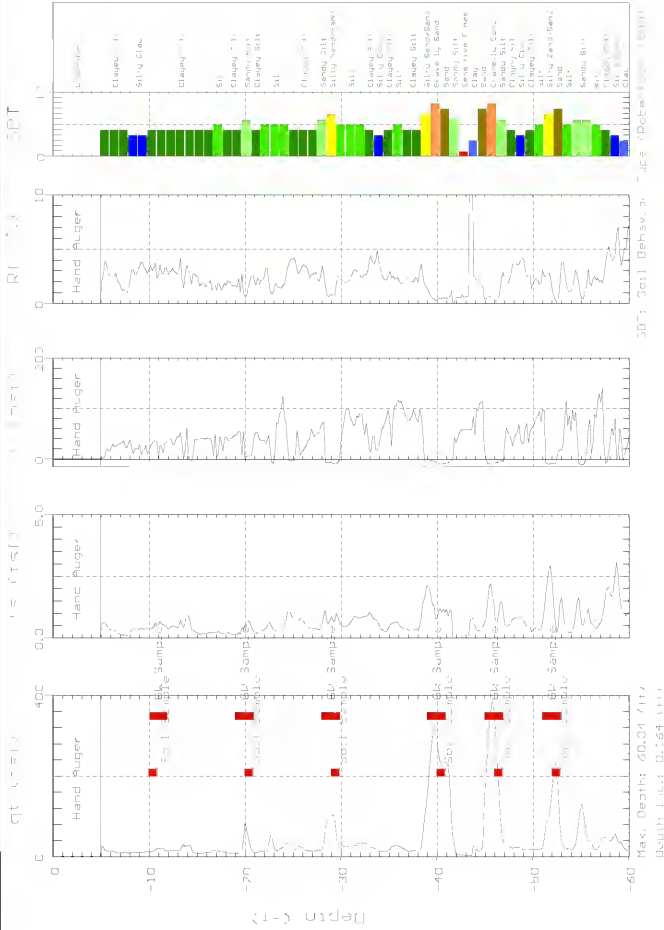


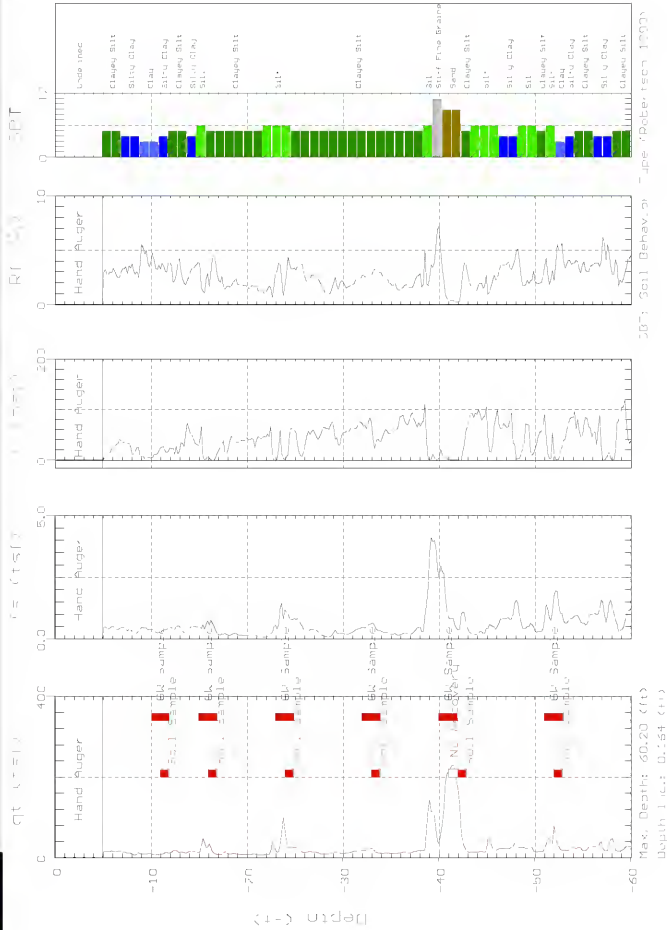
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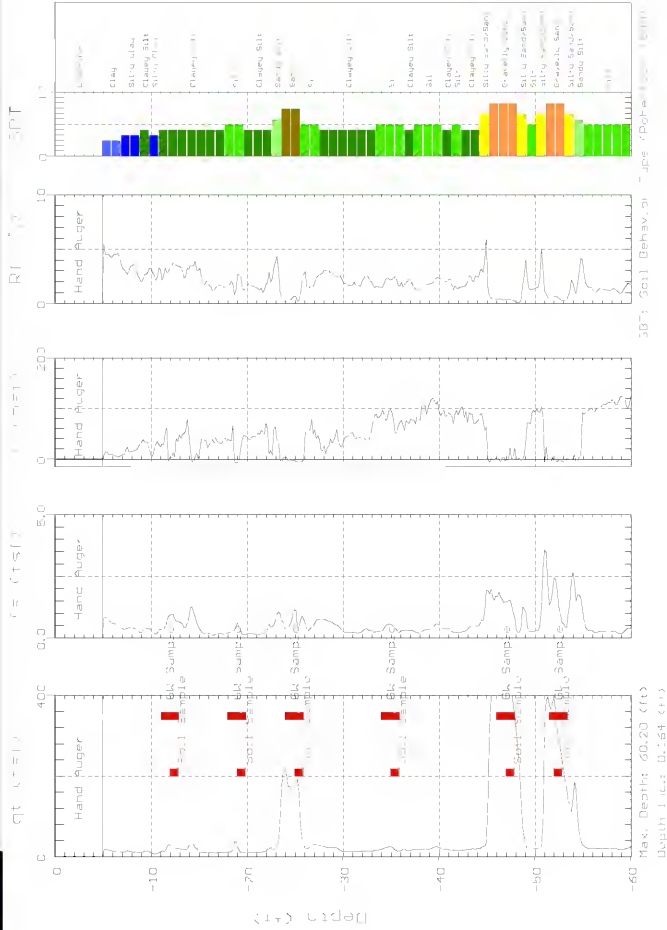
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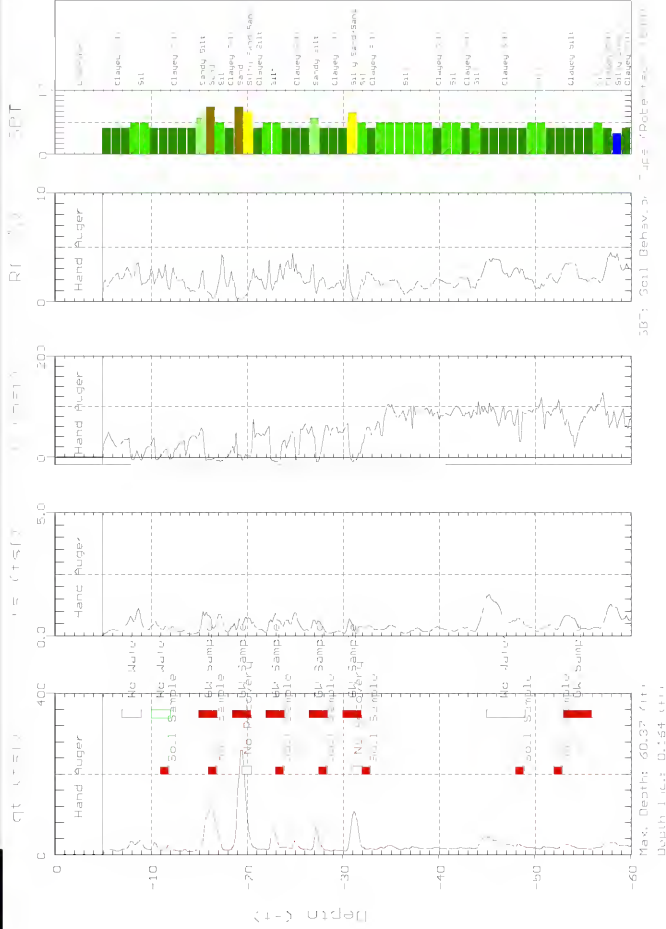
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Base Realignment and Closure  
Program Management Office West  
1455 Frazee Road, Suite 900  
San Diego, California 92108-4310

CONTRACT NO. N68711-98-D-5713  
CTO NO. 0086

**DRAFT**  
**FORMER BUILDING 88 INVESTIGATION REPORT**  
**July 21, 2006**

**FORMER NAVAL AIR STATION MOFFETT FIELD**  
**MOFFETT FIELD, CALIFORNIA**

**DCN: FWSD-RAC-06-0206**



**TETRA TECH EC, INC.**

1230 Columbia Street, Suite 750  
San Diego, CA 92101-8536

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Gordon Jamieson  
Project Manager

---

Larry Dudus, PG 5126  
Project Geologist

---

Dennis Goldman, Ph.D., PG 4509  
Groundwater Technical Lead





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## ABBREVIATIONS AND ACRONYMS

µg/kg	micrograms per kilogram
µg/L	micrograms per liter
µmhos/cm	micromhos per centimeter
1,1-DCA	1,1-dichloroethane
ASTM	American Society for Testing and Materials
bgs	below ground surface
C	Celsius
CA	California
Ca	calcium
CaCO <sub>3</sub>	calcium carbonate
cc	cubic centimeter
cis-1,2-DCE	cis-1,2-dichloroethene
Cl	chloride
cm	centimeter
CO <sub>3</sub>	carbonate
COC	constituent of concern
CPT	cone penetrometer testing
cu yd	cubic yard
DHC	<i>Dehalococcoides</i> spp.
DNAPL	dense non-aqueous phase liquid
DoD	Department of Defense
DPT	direct push technology
EOS	Edible Oil Substate
EPA	U.S. Environmental Protection Agency
FD	field duplicate
Fe	iron
FWENC	Foster Wheeler Environmental Corporation
g	grams
GW	groundwater
HCO <sub>3</sub>	bicarbonate

## ABBREVIATIONS AND ACRONYMS

(Continued)

HDPE	high-density polyethylene
HLA	Harding Lawson Associates
HRC <sup>®</sup>	Hydrogen Release Compound
J	estimated value
ISOTEC	In-Situ Oxidative Technologies, Inc.
K	potassium
L/kg	liters per kilogram
L/min	liter per minute
MCL	Maximum Contaminant Level
MDL	method detection limit
MEW	Middlefield-Ellis-Whisman
Mg	magnesium
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
mL	milliliter
mm	millimeters
mM	millimoles
MS	matrix spike
MSD	matrix spike duplicate
mV	millivolts
Na	sodium
N/A	not applicable
NA	not analyzed
NAS	Naval Air Station
NASA	National Aeronautics and Space Administration
ND	compound analyzed for, but not detected at MDL
nm	nanometers
NO <sub>3</sub>	nitrite
NS	physiological status markers not detected
NTU	nephelometric turbidity unit

## ABBREVIATIONS AND ACRONYMS

(Continued)

PCE	tetrachloroethene
PID	photoionization detector
PLFA	phospholipids fatty acid
ppbv	parts per billion by volume
ppm	parts per million
PRC	PRC Environmental Management, Inc.
PRG	Preliminary Remediation Goal
QA	quality assurance
QC	quality control
R	quality control indicates that data is not usable
RAO	Remedial Action Objective
RPD	relative percent difference
SO <sub>4</sub>	sulfate
Ssp	species
TCE	trichloroethene
TCE R-Dase	trichloroethene reductase
TIC	tentatively identified compound
TOC	total organic carbon
TtEMI	Tetra Tech EM, Inc.
TtFW	Tetra Tech FW, Inc.
U	not detected at or above the laboratory reporting limit (value indicates reporting limit)
USCS	Unified Soils Classification System
VC	vinyl chloride
VC R-Dase	vinyl chloride reductase
VOC	volatile organic compound
WATS	West-Side Aquifers Treatment System

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## EXECUTIVE SUMMARY

The objective of this study was to determine if historic dry cleaning activities from former Building 88 has resulted in a residual source of tetrachloroethene (PCE) contamination to groundwater, and if present, to characterize the nature and extent of such contamination. Building 88 was located at the former Naval Air Station Moffett Field (Moffett), Moffett Field, California, and served as a dry cleaning and laundry facility from approximately 1945 until its closure in 1987. The Navy conducted a removal action in 1994, which included the demolition of the building and the removal of associated tanks and sumps. The Navy began groundwater source control in 1994.

The investigation described in this document included a soil gas survey, soil core sampling, cone penetrometer testing, geologic logging, direct push technology groundwater and soil sampling, groundwater monitoring well installation and sampling, and collection of soil and groundwater samples for treatability studies. A continuing source of PCE contamination to groundwater was identified in the footprint of Building 88 and in a traffic island along a sewer alignment downstream from the building location.

### **PCE Contamination in the Building 88 Footprint Area**

The maximum PCE concentration in soil samples collected from the Building 88 area was in a sample collected beneath the building footprint (6,700 micrograms per kilogram [ $\mu\text{g}/\text{kg}$ ]), located in the area of Sump 66. PCE concentrations in soil greater than the U.S. Environmental Protection Agency Preliminary Remediation Goal for residential land use of 480  $\mu\text{g}/\text{kg}$  extend to a maximum depth of approximately 35 feet below ground surface (bgs). The calculated volume of soil with PCE concentrations greater than 480  $\mu\text{g}/\text{kg}$  within the footprint of Building 88 is 775 cubic yards (cu yd). The calculated mass of PCE in the soil with concentrations greater than 480  $\mu\text{g}/\text{kg}$  in the Building 88 area is 2.5 pounds. Shallow PCE contamination in soil in the Building 88 area does not extend laterally much farther than the building footprint. It appears that PCE-contaminated soil is contributing to groundwater PCE concentrations in the A aquifer at the Building 88 area.

PCE concentrations in groundwater beneath the Building 88 area range from less than the laboratory reporting limit of 0.5 micrograms per liter ( $\mu\text{g}/\text{L}$ ) to an estimated high of 2,100  $\mu\text{g}/\text{L}$ . PCE concentrations increase with depth to the north of the Building 88 footprint at depths greater than 30 feet bgs. PCE-contaminated groundwater moved vertically down (advectively with groundwater and/or as a dense non-aqueous phase liquid [DNAPL]) to about 20 to 30 feet bgs underlying the Building 88 footprint. In the 20- to 30-foot bgs depth interval, the PCE-contaminated groundwater moved advectively to the north and/or possibly down-dip as DNAPL. Contamination then found a vertical pathway and moved to the greatest depth investigated (60 feet bgs).



## **PCE Contamination in the Traffic Island Area**

Wastewater containing PCE from the Building 88 Sump 66 was discharged to a sewer line. There was a leak in the sewer line downstream from Building 88 in the traffic island area, resulting in PCE contamination of soils and groundwater. PCE concentrations in soil in the traffic island were greater than 480 µg/kg to a depth of about 65 to 70 feet bgs. The calculated volume of PCE-contaminated soil at concentrations greater than 480 µg/kg in the traffic island area is 12,400 cu yd. The calculated mass of PCE in the soil with concentrations greater than 480 µg/kg in the traffic island area is 32 pounds. It appears that PCE-contaminated soil is contributing to groundwater PCE concentrations in the A aquifer at the traffic island area.

Concentrations of PCE in groundwater beneath the traffic island area range from 2,000 to 15,000 µg/L within the A aquifer. It appears that PCE contamination moved vertically down to the depth of about 70 feet bgs in the traffic island. Based on the PCE concentrations measured in this investigation, the vertical movement of contamination in the traffic island was likely a combination of DNAPL and dissolved phase. Based on groundwater concentrations of PCE, DNAPL appears to be present at a depth of 17 to 19 feet bgs.

## **PCE Groundwater Contamination**

There are two PCE plume lobes within the upper portion of the A aquifer. The eastern lobe is a narrow linear feature (about 1,000 feet long and generally less than 50 feet wide) along Cummins Avenue. The eastern lobe, found in the shallowest portions of the upper A aquifer, appears to be controlled by the utility trench backfill along Cummins Avenue. The highest groundwater concentration of PCE within the eastern lobe (excluding the traffic island source area) was reported at an estimated concentration of 830 µg/L. The western PCE plume lobe within the upper portion of the A aquifer is approximately 2,000 feet long and from 150 to 250 feet wide. The plume has an elongated shape in a north-south direction, apparently controlled by the channelization characteristics of coarse-grained soil. The highest groundwater concentration of PCE within the western lobe (excluding the Building 88 source area) was reported at an estimated concentration of 150 µg/L. The amount of PCE in groundwater in the upper A aquifer is calculated to be 48 pounds.

The PCE groundwater plume in the lower A aquifer is approximately 1,600 feet long and ranges from 250 to 500 feet wide. The plume is located generally west of Hangar 1. The highest groundwater concentration of PCE within the lower portion of the A aquifer (not accounting for the PCE within the Building 88 or traffic island source areas) was at an estimated concentration of 530 µg/L. The amount of PCE in groundwater in the lower portion of the A aquifer is calculated to be 70 pounds.

There is de minimus PCE impacting the B2 aquifer. One B2 aquifer groundwater monitoring well had PCE concentrations above laboratory reporting limits in samples collected in December 2005. The 6 ug/L of PCE in the December 2005 groundwater sample collected from that well appear to be residual contamination caused by drag-down during well construction.

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## 1.0 INTRODUCTION

The Navy is conducting environmental restoration activities at the former Naval Air Station Moffett Field (Moffett), Moffett Field, California (Figures 1-1 and 1-2), as part of the Installation Restoration Program. This Report addresses the evaluation of source areas and remedial alternatives for a tetrachloroethene (PCE) groundwater plume apparently originating from the former Building 88 dry cleaning facility at Moffett. Implementation of the *Final West-Side Aquifers Treatment System [WATS] Optimization Work Plan Addendum 1* (Tetra Tech FW, Inc. [TiFW], 2005a) was conducted between April and May 2005.

This Report was prepared on behalf of the Navy's Base Realignment and Closure Program Management Office West. This work was conducted under Contract Task Order No. 0086, issued under Remedial Action Contract No. N68711-98-D-5713.

### 1.1 SITE DESCRIPTION

Building 88 was located south of Wescoat Road between Severyns Avenue and Dugan Avenue. The site is currently a vacant lot occupying approximately  $\frac{1}{2}$  acre (Figure 1-3 and Appendix A, Photograph A-1). Prior to its development in 1930, the surrounding area was used for agriculture. Building 88 served as a dry cleaning and laundry facility from approximately 1945 until its closure in 1987. Therefore, Building 88 is the only possible source of PCE (dry cleaning solvent) in the area.

The Building 88 footprint occupied approximately 13,500 square feet. Building 88 was constructed with a concrete floor, containing numerous floor drains, floor trenches (assumed to be concrete lined, but construction specifics could not be verified), and subsurface steel piping for wastewater collection (Figure 1-4). Floor drains and piping in the main portion of the building drained to Sump 91, a 700-gallon, single-chamber concrete sump used to collect and store wastewater. Floor drains and piping near the equipment room (northeast portion of the building) received and drained wastewater from the dry cleaning machine area to Sump 66, a 100-gallon concrete sump that was reportedly connected to the sanitary sewer. The equipment room had wastewater collection floor trenches ranging in depth from 1 to 2.5 feet, which drained to the south. Wastewater from dry cleaning operations may have drained to Tank 68 via the wastewater collection floor trenches. Tank 68 was located adjacent to the portion of the facility where the wastewater collection trench was deepest (approximately 2.5 feet below the concrete floor surface). Tank 68, a 2,000-gallon concrete tank, was reported to have stored or collected waste dry cleaning fluids. A 5-foot-deep pit and a steam pit may have been located in the northeast and southeast corners of the equipment room, respectively. Confirmation of these pits could not be validated, and record drawings could not be located.

Sump 66 was excavated and removed in 1990. Tank 68 was closed in place in 1990. Remedial activities completed in 1994 included the following:

- Tank 68 was excavated, emptied, and removed.
- Building 88, including the collection trenches, floor drains, and piping, was demolished and removed.
- Sump 91 was excavated and removed.
- Groundwater source control measures were installed,

## **1.2 PREVIOUS INVESTIGATIONS**

The following sections describe previous site investigations conducted at or near the former Building 88.

### **1.2.1 Soil Gas Surveys**

Soil gas surveys were conducted in the vicinity of Building 88 in 1988 and in 1990 (Harding Lawson Associates [HLA], 1995). Thirteen soil gas samples were collected and analyzed for PCE within 50 feet of the building. Sample locations and PCE concentrations are shown on Figure 1-5. The maximum PCE gas concentration of 312,000 parts per billion by volume (ppbv) was detected in a sample that was collected adjacent to the south side of the equipment room, near Tank 68. Soil gas samples were not collected within the Building 88 footprint.

Additional soil gas samples were collected in 1991 (HLA, 1995). The majority of the soil gas samples collected in 1991 were located approximately 800 to 1,200 feet north and east of Building 88. PCE was detected in soil gas at a maximum concentration of 248 ppbv in a sample collected from a location on Cummins Avenue, near a sanitary sewer line adjacent to Hangar 1. The sanitary sewer line reportedly served as a conduit for PCE-containing wastewater from Sump 66 (HLA, 1995).

### **1.2.2 Sump 66 Investigations**

Sump 66, a 100-gallon concrete sump approximately 3 feet deep (actual sump dimensions do not appear to have been reported), received wastewater from floor drains and sinks near the dry cleaning equipment area of Building 88. Sump 66 reportedly drained to the sanitary sewer located on Wescoat Road. Sump 66 was inspected in November 1985 (PRC Environmental Management, Inc. [PRC], 1991). A sample of the liquid from the sump contained the following volatile organic compounds (VOCs): 63 milligrams per liter (mg/L) of dibromochloromethane, 55 mg/L of PCE, and trace amounts of ethylbenzene and xylene (less than 0.2 mg/L each). The sump liquids were resampled in March 1987 (PRC, 1991), with detected concentrations of PCE and trichloroethene (TCE) at 18 mg/L and 0.6 mg/L, respectively.

Monitoring well ERM-4 and soil boring ERM-B13 located near Sump 66 (see Figure 1-5) were installed and sampled in 1987 (PRC, 1991). Soil samples were collected at depths of 7, 12, 17, and 19.5 feet below ground surface (bgs) at both locations. PCE was detected at a maximum concentration of 2,100 micrograms per kilogram ( $\mu\text{g}/\text{kg}$ ) at 19.5 feet bgs in a soil sample from the boring for monitoring well ERM-4, and 6,900  $\mu\text{g}/\text{kg}$  at 12 feet bgs in a soil sample from boring ERM-B13.

Sump 66 was inspected in 1990 and found to be cracked from the top to the bottom. The sump was excavated and removed. Groundwater was not encountered in the excavation. Three soil samples were collected from the excavation: one from the west wall, one from the north wall, and one from the excavation bottom. PCE was detected in the west wall soil sample at a concentration of 20  $\mu\text{g}/\text{kg}$ . PCE concentrations in the other two excavation soil samples were below laboratory reporting limits (PRC, 1991).

### **1.2.3 Tank 68 Investigations**

Tank 68, a 2,000-gallon concrete tank, was used to store PCE cleaning solvent. The tank was emptied of liquids, filled with sand, and closed in place in 1987 (PRC, 1995). Angled boring SB68-1 and angled monitoring well W68-1 were drilled to the west and east of Tank 68, respectively (see Figure 1-5), in September 1990. Soil samples were collected at depths of 2.5, 7.5, 12.5, 17.5, and 25 feet bgs at both locations. PCE was detected at a maximum concentration of 140  $\mu\text{g}/\text{kg}$  at 12.5 feet bgs in a soil sample from the boring for monitoring well W68-1 and 110  $\mu\text{g}/\text{kg}$  at 17.5 feet bgs in a soil sample from boring SB68-1.

Tank 68 was excavated and removed in 1994 (PRC, 1995). The tank, which appeared to be intact, was broken up and removed using a backhoe. The maximum excavation depth was approximately 9 feet bgs. Groundwater was not initially observed, but eventually accumulated in the bottom of the excavation. Three soil samples and one groundwater sample were collected from the excavation bottom. Reported PCE soil concentrations ranged from 8  $\mu\text{g}/\text{kg}$  to 130  $\mu\text{g}/\text{kg}$ . PCE was detected in the groundwater sample at a concentration of 200 micrograms per liter ( $\mu\text{g}/\text{L}$ ) (PRC, 1995).

### **1.2.4 Sump 91**

Sump 91, a 700-gallon concrete sump, received wastewater from the Building 88 floor drains and sinks. Sump 91 contained liquid that was sampled and then pumped out in 1991 (PRC, 1991). Analytical results for the Sump 91 liquid sample were not reported. The sump was excavated and removed in 1994. The sump was empty at the time of removal, and there were no signs of cracks or leaks. The maximum excavation depth was approximately 6 feet bgs. Four soil samples were collected by PRC from the excavation sidewalls and bottom to evaluate potential contamination. PCE was detected in one soil sample at an estimated concentration of 3  $\mu\text{g}/\text{kg}$ . PCE was not detected above laboratory reporting limits in the other three samples (PRC, 1995).

### 1.2.5 Unsaturated Zone Source Removal

Building 88 was demolished in 1994; the foundation, floor, floor drains, collection trenches, and subsurface piping were excavated and removed. One hundred and nineteen pre-excavation soil samples were collected at locations throughout the building footprint, including under the floor, drains, piping and trenches, and foundation (PRC, 1995). Soil samples beneath the floor were collected at depths of approximately 1.5 to 3 feet bgs. Soil samples beneath the drains, piping, and trenches were collected at 3 to 5 feet bgs. Soil samples beneath the foundation were collected at 4 to 6 feet bgs. PCE was detected at concentrations above the negotiated cleanup level (500 µg/kg) in three pre-excavation soil samples (see Figure I-5): 1,000 µg/kg detected in a pre-excavation soil sample adjacent to a floor drain, 580 and 540 µg/kg detected in pre-excavation soil samples in the southwest corner of the equipment room. PCE was not detected above laboratory reporting limits (approximately 12 µg/kg) in 69 pre-excavation soil samples. The remaining 47 pre-excavation soil samples had PCE concentrations between laboratory reporting limits and the cleanup level. The pre-excavation soil PCE concentrations varied over a relatively small distance. For example, PCE was detected at 21 µg/kg in a soil sample 2 feet southeast of and 2 feet shallower than the soil sample with the maximum PCE concentration of 1,000 µg/kg.

Approximately 400 cubic yards of soil were excavated from two areas where soil sample PCE concentrations exceeded the cleanup level of 500 µg/kg (see Figure I-5). Soil in these two areas was excavated to the water table, approximately 7 to 8 feet bgs. Seven post-excavation bottom-hole samples were collected from the two areas. PCE was detected at a concentration of 1,100 µg/kg in the post-excavation bottom-hole soil sample in the north area excavation. No additional excavation was accomplished due to encountering groundwater.

### 1.2.6 Saturated Zone Contaminant Removal

A groundwater source control measure was installed in 1994 to provide hydraulic control of potential residual saturated zone contamination from the former Building 88 (Tetra Tech EM, Inc. [TtEMI], 2001). The groundwater source control measure, referred to as the Building 6 Treatment System, was located north of the former Building 88 and installed in October 1994. The Building 6 Treatment System extracted and treated chlorinated solvent-contaminated groundwater using two granular activated carbon units in series from converted groundwater monitoring well W9-46 (see Figure I-5) (TtEMI, 2001). Based on a review of quarterly National Pollutant Discharge Elimination System reports, the Building 6 Treatment System extracted and treated approximately 800,000 gallons of groundwater. A total of 2.4 pounds of VOCs were removed by the Building 6 Treatment System. The system was shut down in 1997 because of the installation and operation of the WATS.

The WATS went on-line in November 1998 and remains in operation. The system includes six extraction wells screened in the upper portion of the A aquifer and three extraction wells screened in the lower portion of the A aquifer. These extraction wells, in conjunction with Middlefield-Ellis-Whisman (MEW) regional extraction wells, maintain hydraulic capture at the northern (leading) edge of the regional groundwater plume. Contamination that migrates from sources upgradient of the WATS area and residual on-site contaminant sources, including the former Building 88, is captured and treated. Upper A aquifer extraction well EA1-1 was constructed as a source control well to replace extraction well W9-46.

### **1.2.7 WATS Rebound Testing**

One of the objectives of the *Final West-Side Aquifers Treatment System Optimization Work Plan* (Foster Wheeler Environmental Corporation [FWENC], 2003) was to conduct rebound groundwater sampling at extraction well EA1-1 and the surrounding monitoring wells. Extraction well EA1-1 was temporarily turned off on April 12, 2004, for testing and turned back on December 3, 2004. The results of the rebound testing were interpreted to suggest a continuing source of PCE upgradient of EA1-1. Concentrations of PCE in groundwater samples from monitoring well W9-46 increased from approximately 100 µg/L (baseline concentration – extraction well operating) to over 200 µg/L (rebound concentration – approximately 6 months after the extraction well was turned off).

PCE concentrations from the 2004 annual sampling event for the WATS in the area of the former Building 88 were evaluated. The PCE concentrations in extraction wells are not used in the contouring process since they are not representative of the extraction well location, but rather of the area of groundwater captured by the extraction well. The results are summarized below.

#### **Upper A Aquifer – PCE Plume**

The PCE plume in the upper portion of the A aquifer is approximately 2,000 feet long and 150 feet wide (Figure 1-6). The highest concentration of PCE in the WATS area, within the upper A aquifer, was reported as 230 µg/L in a sample collected from groundwater monitoring well W9-46. Monitoring well W9-46 is located approximately 100 feet northeast of the Building 88 footprint.

#### **Lower A Aquifer – PCE Plume**

The PCE plume in the lower portion of the A aquifer is approximately 1,700 feet long and 300 feet wide. The plume is located west of Hangar 1 (Figure 1-7). The highest concentration of PCE in the WATS area, within the lower A aquifer, was reported at an estimated concentration of 410 µg/L in a sample collected from groundwater monitoring well W9-20. Monitoring well W9-20 is located approximately 250 feet west of Hangar 1.



### 1.3 WORK PLAN ADDENDUM OBJECTIVES

The objectives identified in the *Final West-Side Aquifers Treatment System Optimization Work Plan Addendum 1* (TtFW, 2005a) included the following:

- Evaluate whether the residual vadose zone PCE is a continuing source of contamination for groundwater.
- Evaluate the extent of saturated soils with PCE concentrations that could be a source of groundwater contamination.
- Evaluate the delineation and understanding of the nature of the downgradient PCE groundwater plume.
- Evaluate PCE source area treatability, if appropriate.

### 1.4 REPORT ORGANIZATION

This Report is organized as follows:

- **Section 1.0** provides the former Building 88 site description, a summary of previous investigations, Work Plan Addendum objectives, and Report organization.
- **Section 2.0** presents the soil gas survey objectives, field activities, and results.
- **Section 3.0** presents the continuous core drilling objectives, field activities, and results.
- **Section 4.0** presents the cone penetrometer and direct push testing objectives, field activities, and results.
- **Section 5.0** presents the groundwater monitoring well drilling, construction, and completion.
- **Section 6.0** presents the groundwater sampling objectives, field activities, and results.
- **Section 7.0** presents the results of the sample quality review.
- **Section 8.0** presents the geology and hydrogeology.
- **Section 9.0** presents source evaluation and contaminant fate and transport.
- **Section 10.0** presents the treatability study objectives and results.
- **Section 11.0** presents conclusions.
- **Section 12.0** includes a list of references.
- **Tables, Figures, and Plates** are included with the text.
- **Appendix A** includes project photographs.
- **Appendix B** includes the analytical result reports and chain-of-custody documentation on compact disk.
- **Appendix C** contains survey data.

- **Appendix D** contains the continuous core permits and lithologic logs, the monitoring well boring and construction logs, and monitoring well development logs.
- **Appendix E** contains the cone penetrometer testing permits and logs.
- **Appendix F** includes low-flow groundwater sampling data sheets.
- **Appendix G** includes a detailed quality assurance/quality control report.
- **Appendix H** includes the ISOTEC laboratory treatability study report.
- **Appendix I** includes the Microbial Insights treatability study report.

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## 2.0 SOIL GAS SURVEY

This section provides a summary of the objective, activities, and results of the soil gas survey.

### 2.1 SOIL GAS SURVEY OBJECTIVE

The objective of the soil gas survey was to identify areas where tetrachloroethene (PCE) was present in the subsurface, as specified in Data Quality Objective Decision Question No. 1 in the Sampling and Analysis Plan to the *Final West-Side Aquifers Treatment System Optimization Work Plan Addendum 1* (Tetra Tech FW, Inc. [TtFW], 2005a): Is PCE detected above action levels for samples collected in the vadose zone, which would indicate a potential source area? Results of the soil gas survey were used to direct the subsequent investigation. Specific targets were to:

- Evaluate the potential presence of source areas beneath the Building 88 footprint.
- Evaluate the potential presence of source areas along the downstream sanitary sewer alignment piping.

### 2.2 SOIL GAS SURVEY ACTIVITIES

The activities associated with conducting the soil gas survey were the following:

- Geophysical survey for underground utilities
- Installation of soil gas sampling probes
- Soil gas sampling and analysis for PCE, trichloroethene (TCE), cis-1,2-dichloroethene (cis-1,2-DCE), and vinyl chloride (VC)
- Soil gas sample probe removal, site restoration, and sample location survey

The soil gas survey was completed in accordance with the *Final West-Side Aquifers Treatment System Optimization Work Plan Addendum 1* (TtFW, 2005a). Initial soil gas survey locations were based on previous soil gas survey detections of PCE, reported residual PCE after Building 88 demolition and groundwater detections of PCE. Fifty soil gas probes were installed: 38 as originally proposed and 12 as step-outs at locations where PCE soil gas was detected at concentrations above 500 parts per billion by volume (ppbv). The value of 500 ppbv was chosen because it is half the average of the historical PCE soil gas concentrations. Soil gas probe locations and the survey results (described in Section 2.3) are shown on Figures 2-1 and 2-2. Soil gas probe installation and sampling activity photographs were provided in Appendix A.

### **2.2.1 Soil Gas Probe Installation**

Soil gas probes were installed between April 4 and April 7, 2005. Underground Service Alert was notified and a geophysical survey was performed at each proposed soil gas probe location before installation. A nominal 2-inch-diameter hand-auger was used to advance 50 borings to 5 feet below ground surface (bgs). Soil gas probes were installed in each boring. The soil gas probes consisted of a 1.4-inch-long, 0.35-inch outside diameter porous probe tip, connected to 0.25-inch-diameter Teflon<sup>®</sup> tubing, using a barbed pressure fitting (see Appendix A, Photograph A-3). The top of the tubing was connected with a barbed pressure fitting to a threaded cap to seal the probe from the atmosphere.

Approximately 1 inch of filter sand was placed in the bottom of the boring. The probe tip and tube assembly were lowered to the bottom of the boring, with the probe tip resting on the filter sand. Five additional inches of filter sand were placed in the annular space across and above the probe tip (see Appendix A, Photograph A-4). Coarse granular bentonite was placed above the filter sand to land surface and then hydrated with potable water. The bentonite surface seal was visually inspected to ensure that the probe had been sealed from the atmosphere (see Appendix A, Photograph A-5).

Twenty-seven soil gas probes were installed within, or immediately adjacent to the Building 88 footprint (see Figure 2-2). Soil gas probes were installed along the former floor drains, drain lines, trenches, pits, sumps, and tank to evaluate the potential presence of PCE source areas beneath the Building 88 footprint. Eight soil gas probes were installed along the sewer alignment downgradient of Sump 66, as originally planned. Thirteen soil gas probes were installed as step-outs from the original eight locations along the sewer alignment (see Figure 2-1). Two soil gas probes were installed north of National Aeronautics and Space Administration (NASA) Building N210, as originally planned (see Figure 2-1). The two soil gas probe locations downgradient of NASA Building N210 were selected due to the observed increase in PCE concentration in samples collected from the upper A aquifer groundwater monitoring wells 14D29A and 14D12A.

Forty-seven soil gas probes were successfully installed and sampled (see Figures 2-1 and 2-2). Three soil gas probes (SG-88-W1, SG-88-W2, and SG-88-W3), located along the sewer line and a storm drain, produced water during purging and were not sampled (see Figure 2-1).

### **2.2.2 Soil Gas Probe Sampling**

Soil gas probes were sampled approximately 24 hours after installation. A 60-cubic centimeter (cc) syringe with a stop-cock valve on the intake was threaded to the cap on the end of the soil gas probe tubing for a gas-tight seal (see Appendix A, Photograph A-6). A purge volume test was conducted at the first sampling location, SG-88-1. The purge test was conducted in accordance with California Department of Toxic Substances Control protocol (California

Environmental Protection Agency, Department of Toxic Substances Control and California Regional Water Quality Control Board, 2003). The purge test consisted of collecting samples after purging one probe tip and tubing volume (approximately 30 ccs), three tube and tip volumes, and seven tube and tip volumes. The highest gas concentration of a volatile organic compound (VOC), which happened to be TCE, was detected in the gas sample collected after purging seven probe tip and tubing volumes. Therefore, all subsequent soil gas probes were purged of seven probe tip and tubing volumes prior to sampling.

Prior to sampling, the soil gas probe was purged by withdrawing seven tip and tubing volumes with a 60-cc syringe. The syringe was evacuated to the atmosphere during purging. During purging and sampling, the syringe plunger was withdrawn at a constant rate in an effort to withdraw soil gas at a flow rate less than 200 milliliters (mL) per minute (see Appendix A, Photograph A-6). The syringe was used to collect the gas sample after purging. The stop-cock was shut and the soil gas syringe was immediately transferred to an on-site mobile laboratory for analysis after collecting the soil gas sample.

Prior to sampling, 1,1-difluoroethane was introduced at the junction of the tubing and the bentonite seal as a tracer compound for the purpose of leak testing. The tracer compound was included in the VOC analysis to determine if there was a leak in the annular seal. The tracer compound was not detected in any of the sample results (see soil gas sample report narrative in Appendix B), indicating that all of the soil gas samples were representative of subsurface soil gas.

### **2.2.3 Soil Gas Probe Removal**

The soil gas probe tubes were pulled out of the ground once all soil gas probes had been sampled. Additional coarse granular bentonite was added to the resulting hole and hydrated. In paved areas, the bentonite was removed to the base of the pavement, then backfilled with concrete to match the existing grade. Horizontal and vertical coordinates for the soil gas probes were surveyed. Survey data for the soil gas probes are provided in Appendix C.

## **2.3 SOIL GAS SURVEY RESULTS**

Potential PCE source areas were identified along the sewer alignment (along Cummins Avenue between S. Akron Road and Wescoat Road, and along Wescoat Road to the east of Sump 66) and in the footprint of the equipment room within the Building 88 footprint. Soil gas sample results were shown on Figures 2-1 and 2-2 and are summarized in Table 2-1. The Building 88 area overlies the regional TCE plume, and thus, although reported, TCE, cis-1,2-DCE, and VC gas concentrations were not used to evaluate potential source areas. The highest soil gas PCE concentrations were detected in samples collected along the sewer alignment, downstream of the former Building 88, suggesting that PCE entered the subsurface through leaks in the sewer line.

Soil gas PCE concentrations reported for samples collected within the Building 88 footprint ranged from below the laboratory reporting limit of 140 ppbv to 1,200 ppbv (see Figure 2-2). PCE soil gas concentrations were below laboratory reporting limits in samples from 11 out of 12 soil gas probes (SG-88-11, SG-88-12, SG-88-14 through SG-88-21, and SG-88-36) located near the former floor drains and drain lines that discharged to Sump 91. Soil gas PCE concentrations were below the laboratory reporting limit in the samples collected from SG-88-10 and SG-88-15 located to the north and south of Sump 91, respectively. Soil gas PCE concentrations were at or above the laboratory reporting limit in samples from 11 of 13 probes located in the former equipment room and near the floor drains that discharged to Sump 66 (see Figure 2-2). However, the soil gas PCE concentrations were below the laboratory reporting limit for the samples collected from soil gas probes SG-88-1 and SG-88-31, north and south of the Sump 66 location, respectively.

Soil gas PCE concentrations in samples collected along the sewer alignment ranged from below the laboratory reporting limit of 140 ppbv to 11,000 ppbv (see Figure 2-1). Eight soil gas probes (SG-88-2 through SG-88-7, SG-88-35, and SG-88-W1) were installed directly above the sewer line. Soil gas PCE was detected at concentrations greater than 500 ppbv in samples collected from all soil gas probes along the sewer alignment downstream of Sump 66 (to the east along Wescoat Road and then to the north along Cummins Avenue) until about S. Akron Road. All soil gas PCE concentrations in samples collected from probes along Cummins Avenue to the north of S. Akron Road (SG-88-44, SG-88-6, and SG-88-7) were less than the laboratory reporting limit. Reported soil gas PCE concentrations along the sewer alignment were highest in samples collected from probes along Cummins Avenue from Wescoat Road north to just east of Building 64. PCE was detected in soil gas samples collected at SG-88-2 through SG-88-5 at 750 ppbv, 900 ppbv, 11,000 ppbv, and 1,300 ppbv, respectively.

Additional soil gas probe locations (step-outs) were installed and sampled to further characterize locations along the sanitary sewer where PCE concentrations were greater than 500 ppbv (see Figure 2-1) in accordance with the *Final West-Side Aquifers Treatment System Optimization Work Plan Addendum 1* (TtFW, 2005a):

- Soil gas probes SG-88-37, SG-88-39, SG-88-40, and SG-88-41 were installed as step-outs to soil gas probe SG-88-2.
- Soil gas probes SG-88-42 and SG-88-W2 were installed as step-outs to SG-88-3.
- Soil gas probes SG-88-43, SG-88-W2, and SG-88-W3 were the step-outs for SG-88-4.
- Soil gas probes SG-88-38, SG-88-43, and SG-88-44 were installed as step-outs to SG-88-5.
- Soil gas probe SG-88-47 was the step-out for SG-88-38.

- Soil gas probes SG-88-45 and SG-88-46 were installed as step-outs for SG-88-W3 (These step-outs were constructed since SG-88-W3 could not be sampled [see below]).

Three soil gas probes could not be sampled due to the presence of water: SG-88-W1, SG-88-W2, and SG-88-W3. A storm drain was located adjacent to each soil gas probe location where water was detected. The water detected in the soil gas probes appears to have been stormwater infiltrating into the storm drain trench backfill material and not groundwater, since step-out soil gas probes did not contain water.

Soil gas PCE concentrations were not detected above laboratory reporting limits in the two gas samples collected to the north of NASA Building N210 (SG-88-8 and SG-88-9).



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### 3.0 CONTINUOUS CORE DRILLING

This section provides a summary of the objectives, activities, and results of activities associated with continuous core drilling.

#### 3.1 CONTINUOUS CORE DRILLING OBJECTIVES

Objectives of continuous core drilling were to provide lithologic logs for correlation with the subsequent cone penetrometer testing (CPT) logs (see Section 4.0), and to identify sampling intervals for the collection of data necessary to answer Data Quality Objective Decision Question No. 2 in the Sampling and Analysis Plan to the *Final West-Side Aquifers Treatment System Optimization Work Plan Addendum 1* (Tetra Tech FW, Inc. [TtFW], 2005a): Is tetrachloroethene (PCE) detected above action levels for samples collected in the saturated zone, which would indicate a potential source area? Specifically, the objectives were to:

- Prepare lithologic logs from continuous core.
- Screen core for PCE and volatile organic compounds (VOCs).
- Collect soil samples for laboratory analysis based on field screening results.
- Compare lithologic logs to laboratory grain-size distributions.
- Identify lithologic layers for subsequent direct push technology (DPT) soils and groundwater sampling.

#### 3.2 CONTINUOUS CORE DRILLING FIELD ACTIVITIES

The activities associated with conducting continuous core drilling were the following:

- Geophysical survey for underground utilities
- Drilling (using a hollow-stem auger rig) to collect a continuous core
- Logging the core by a field geologist
- Field screening the core for PCE (using compound-specific Draeger® tubes) and total VOCs (using a photoionization detector [PID])
- Sampling select intervals for VOCs, total organic carbon (TOC), grain-size, and treatability testing
- Boring backfilling, site restoration, and surveying

Five continuous core borings were completed in accordance with the *Final West-Side Aquifers Treatment System Optimization Work Plan Addendum 1* (TtFW, 2005a). Continuous core boring locations are shown on Figures 3-1 and 3-2. Continuous core boring CC-88-1 was located approximately 500 feet north (hydrologically downgradient) of the former Building 88 (see Figure 3-1). CC-88-1 was randomly located to be outside a potential source area. Continuous

core borings CC-88-2 through CC-88-5 were located near the Sump 66 excavation, the northern remedial excavation, the Tank 68 excavation, and the southern remedial excavation, respectively (see Figure 3-2). Continuous core boring locations CC-88-2 through CC-88-5 were selected to investigate potential PCE source areas. A continuous core boring was not located at the Sump 91 excavation due to lack of PCE detections in soil gas samples collected upgradient and downgradient of the sump site (see Section 2.3). Soil coring and sampling activity photographs were included in Appendix A.

### 3.2.1 Core Collection

Continuous core borings were drilled between April 6 and April 8, 2005. Underground Service Alert was notified, a geophysical survey performed, and each location was cleared by hand-augering to 5 feet below ground surface (bgs). Continuous core borings were advanced to 59 feet bgs using a hollow-stem auger drill rig equipped with nominal 8¼-inch outside diameter hollow-stem augers (see Appendix A, Photograph A-7). Soil cores were collected using either a 5-foot-long, nominal 4-inch-diameter, or a 2½-foot-long, nominal 2-inch-diameter, split-barrel sampler. The core barrels were attached to 5-foot-long drill rods and lowered into the boring so that the core barrel tip extended in front of the auger bit. The core barrel was advanced ahead of the augers as the augers were advanced. The core barrel was retrieved when a distance equal to the length of the core barrel was drilled.

Not all soil cores were completely recovered. Soil core recovery ranged from 57 percent to 78 percent. Core loss appeared random, occurring in both fine- and coarse-grained lithology, shallow or at depth, using the 5-foot-long or 2½-foot-long sampler, and with or without a sand catcher. Heaving sands (a fine-grained sand/groundwater mixture that enters the augers due to reduced pressure within the augers) created difficulties in the collection of soil core at some locations. Water was added to the augers to assist holding back heaving sands with mixed success.

### 3.2.2 Lithologic Logging

Soil cores were logged in the field by a California Professional Geologist in accordance with the Unified Soils Classification System (USCS), as described in *Visual Classification of Soil* (Bureau of Reclamation, 1986), and the *2000 Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)* (American Society for Testing and Materials [ASTM] D2488-00), using a Munsell soil chart (1990 revised edition) for color designation. The logs are included in Appendix D. Twelve samples were collected from the soil cores for geotechnical laboratory grain-size distribution analysis. Five coarse-grained (primarily sandy soil) and seven fine-grained (primarily silty and clayey soil) soil samples were selected and analyzed by a geotechnical laboratory using ASTM D6913-04 and D422-63, respectively. Coarse-grained soil samples were selected from the following borings and depths:

- CC-88-1 at 15 to 15.5 feet bgs and 52 to 52.5 feet bgs
- CC-88-2 at 20 to 20.5 feet bgs
- CC-88-4 at 41.5 to 42 feet bgs
- CC-88-5 at 43.5 to 44 feet bgs

Fine-grained samples were selected from the following locations and depths:

- CC-88-1 at 9 to 9.5 feet bgs
- CC-88-2 at 12.5 to 13 feet bgs
- CC-88-3 at 7 to 7.5 feet bgs
- CC-88-4 at 6 to 6.5 feet bgs and 58 to 58.5 feet bgs
- CC-88-5 at 27.5 to 28 feet bgs and 51.5 to 52 feet bgs

Grain-size distribution results (provided in Appendix B) were used to correlate the field geologist's lithologic logs. Grain-size distribution results and lithologic logging correlation are described in Section 3.3.1.

### 3.2.3 Field Screening

Soil samples from each core were collected and screened in the field using PCE-specific Draeger® tubes and a PID. Soil samples were collected from both coarse- and fine-grained strata throughout the core. Soil sample selection focused on the base of coarse-grained units and the tops of the next lower fine-grained units to evaluate contamination distribution. Soil samples were placed in sealable plastic bags, filling about 1/3 of the bag, and placed on the dash of the pickup truck with the engine heater/defroster running to maintain the temperature at about 70 degrees Fahrenheit. After a minimum of 5 minutes, a corner of the sealable bag was opened and a PCE-specific Draeger® tube (range of zero to 1 parts per million [ppm]) inserted. Readings were recorded in the field logbook. After completing the Draeger® tube measurement, the PID tip was inserted into the same small opening of the sealable bag. PID readings were also recorded in the field logbook.

### 3.2.4 Soil Sampling

Sections of the soil core were collected for VOC analysis by an analytical laboratory using U.S. Environmental Protection Agency (EPA) Method 8260B and for TOC analysis using the Walkley-Black method (see Appendix A, Photograph A-8). Photograph A-8 shows the sampling procedures for the collection of soil samples for Walkley-Black analysis. Soil samples were collected at the same depths that field screening samples were collected. Select soil samples were analyzed for grain-size distribution, as described in Section 3.2.2. A bulk soil sample collected between 24 and 27.5 feet bgs in boring CC-88-3, consisting of fine to coarse sand with gravel,

was retained for a chemical oxidation laboratory treatability study. The Building 88 investigation was designed for characterization of soils and groundwater contamination, and treatability screening. Chemical oxidation was considered to have a low success potential because of known fine-grained layers within the A aquifer. Therefore, only one sample was collected for the chemical oxidation treatability study.

Soil samples were to be collected from the vadose zone source area (underlying the Building 88 footprint) representing low, medium, and high PCE concentrations to evaluate PCE leachability to the upper portion of the A aquifer. These samples were to address potential unsaturated zone source contribution to the upper portion of the A aquifer. However, due to findings of relatively high saturated zone soils concentrations of PCE in the upper portion of the A aquifer, a field decision was made not to collect and evaluate PCE leachability from unsaturated zone soil samples.

### **3.2.5 Core Boring Backfilling and Location Survey**

Each boring was backfilled with a Portland cement-bentonite grout mixture. The grout was pumped from the bottom of the boring using a tremie pipe in accordance with Santa Clara Valley Water District permit requirements. Boring permits were included in Appendix D. Soil core boring CC-88-1 was repaved to match the existing surface. The remaining soil core borings were completed with soil at land surface, as they were located in an unpaved vacant lot. Soil core boring horizontal and vertical coordinates were surveyed. Survey data for the soil core borings are included in Appendix C.

## **3.3 CONTINUOUS CORE DRILLING AND SAMPLING RESULTS**

Continuous core drilling and sampling activities were accomplished primarily to correlate the field geologist's lithologic logs and subsequent CPT logs, and to identify lithologic layers for subsequent DPT soil and groundwater sampling. Activity results are summarized below. The results of the bulk soil core sample collected for chemical oxidation treatability analysis are described in Section 10.0. Lithologic symbols provided in this section are based on the Unified Soil Classification System, as described in *Visual Classification of Soil* (Bureau of Reclamation, 1986) and the *2000 Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)* (ASTM D2488-00).

### 3.3.1 Lithologic Log Correlation

Twelve soil core samples were selected for grain-size distribution analysis (see Section 3.2.2). The grain-size distribution results were compared to the corresponding continuous soil core boring log descriptions for each depth-specific sample interval. The field geologist's continuous soil core boring log, based on the USCS visual analysis methods, were comparable with grain-size distribution analysis for all samples.

The lithologic logs for the continuous core borings (provided in Appendix D) are considered valid.

### 3.3.2 Sampling Interval Selection and Analytical Results

The intent of the PCE-specific Draeger® tube and PID field screening was to determine the lithologic intervals of PCE-contaminated soils (such as within the more permeable coarse-grained soils or the less permeable fine-grained soils). It was intended that these data would be used to select soil core intervals to be retained for laboratory analysis. Results of the laboratory analysis would then be used to identify lithologic intervals that would be sampled during subsequent DPT activities. As specified in Section 3.2.3, screening focused on the base of coarse-grained units and the tops of the next lower fine-grained units to evaluate PCE contamination distribution. However, there was no response in the PCE-specific Draeger® tube analysis for 28 of 35 screening attempts. Positive Draeger® tube responses, ranging from 0.5 to 1.0 ppm, were detected in seven samples. Therefore, field screening results using the Draeger® tube responses were not used for selecting soil core intervals to be retained for laboratory analysis.

PID screening readings of soil samples ranged from zero to 675 ppm. There was no apparent correlation between PID and Draeger® tube readings. The sample with the greatest PID reading (from boring CC-88-1 at 52 to 52.5 feet bgs, with 675 ppm) had a Draeger® tube reading of zero. Of the seven soil samples with positive Draeger® tube responses, six soil samples had PID readings of zero. It was suspected that the PID readings were measuring other VOCs (such as trichloroethene [TCE] in the regional plume). Therefore, field screening results using the PID readings were not used for selecting core intervals to be retained for laboratory sample analysis.

Because field screening appeared unsuccessful in providing the data needed to select samples for laboratory analysis, 33 out of 35 core intervals screened in the field were retained for VOC and TOC laboratory analysis. PCE analytical results are included in Table 3-1. VOC and TOC analytical results are included in Table 3-2. Laboratory analytical result evaluation confirmed no apparent correlation between field screening results and analytical results. Soil samples such as those collected from boring CC-88-3 at 14-14.5 feet bgs with a PCE concentration of 5,200

micrograms per kilogram ( $\mu\text{g/kg}$ ) (the greatest PCE concentration detected during continuous soil core sampling) had a corresponding Draeger<sup>®</sup> tube reading of zero ppm (see Table 3-1). The seven screening samples with positive Draeger<sup>®</sup> tube responses had corresponding analytical results ranging from non-detected at the laboratory reporting limit of 6  $\mu\text{g/kg}$ , to detected at an estimated concentration below the laboratory reporting limit.

Soil concentrations of PCE above the laboratory reporting limit of 6  $\mu\text{g/kg}$  were detected at four out of the five continuous soil core locations. PCE was not detected above estimated concentrations in any soil sample from boring CC-88-5, located in the southern remedial excavation area. Elevated soil PCE concentrations (greater than 480  $\mu\text{g/kg}$ ) were detected in four out of five depth intervals sampled between 12.5 and 26.5 feet bgs from boring CC-88-2, located about 4 feet north of Sump 66. The EPA Region 9 residential soils Preliminary Remediation Goal (PRG) of 480  $\mu\text{g/kg}$  for PCE was used for the site screening value for soils. The soils PRG's role in site screening was to help identify areas that may require further attention. The residential soils PRG for PCE is slightly lower than the cleanup level identified in the Middlefield-Ellis-Whisman Record of Decision (soil remediation standard for PCE of 100 times the corresponding groundwater value of 5 micrograms per liter [ $\mu\text{g/L}$ ] – 500 micrograms per kilogram [ $\mu\text{g/kg}$ ]). Elevated soil PCE concentrations were detected in four out of four depth intervals sampled between 9.5 and 19.5 feet bgs from boring CC-88-3, located in the northern remedial excavation area. PCE concentrations from boring CC-88-1, located hydraulically downgradient of the Building 88 footprint, ranged from an estimated value below the laboratory reporting limit of 6  $\mu\text{g/kg}$  to 35  $\mu\text{g/kg}$  at 9 to 9.5 feet bgs. Soil PCE concentrations from boring CC-88-4, located about 8 feet west of the Tank 68 excavation area, ranged from an estimated value below the laboratory reporting limit of 6  $\mu\text{g/kg}$  to 110  $\mu\text{g/kg}$  at 9.5 to 10 feet bgs.

The relationship between soil type (coarse-grained versus fine-grained) and PCE distribution is demonstrated in the soil sample results from boring CC-88-2, located near Sump 66 (see Table 3-1). Elevated concentrations of PCE were detected in both coarse- and fine-grained soil from this boring. However, the highest soil PCE concentrations were detected in coarser grained material (sand and silty sand). For example, at 12.5 to 13 feet bgs, PCE was detected in silt (ML) at 1,600  $\mu\text{g/kg}$ . In a silty sand (SM) layer below the silt (ML) at 18.5 to 19.5 feet bgs, PCE was detected at 2,300  $\mu\text{g/kg}$ . Immediately below the silty sand (SM) at 20.5 to 21 feet bgs, PCE was detected in silt (ML) at 52  $\mu\text{g/kg}$ . Similarly, at 25 to 25.5 feet bgs, PCE was detected in silt (ML) at 1,300  $\mu\text{g/kg}$ . One foot deeper at 26 to 26.5 feet bgs, PCE was detected in sand to silty sand (SW-SM) at 2,000  $\mu\text{g/kg}$ . Immediately below the sand (SW-SM) at 26.5 to 27 feet bgs, PCE was detected in clay (CL) at an estimated concentration below the laboratory reporting limit of 6  $\mu\text{g/kg}$ .

The following lithologic layers were selected as the focus of soil and groundwater DPT sampling based on the continuous core analytical results and site history:

- A lithologic layer between approximately 9 and 12 feet bgs: groundwater was often first observed within this range. This range is also the approximate depth at which PCE may have entered the subsurface (via sewer trench, or sump and tank excavation bottoms), as evidenced by the soil PCE concentrations from borings CC-88-2 through CC-88-4. Soil and groundwater sample collection was attempted at this depth range at each CPT/DPT location, whether or not the CPT log indicated the presence of permeable soils.
- All permeable layers: Soil and groundwater sample collection was attempted at each permeable layer indicated on the CPT log. In the absence of obvious permeable layers consisting of sand or sand and gravel (as indicated on the CPT logs), samples from silt with elevated cone bearing measurements and zero pore water pressure measurements (possible indicators of sufficient permeability to yield a water sample) were attempted.
- A silt or clayey silt layer usually between 30 and 40 feet bgs: This interval was often void of highly permeable sand and gravelly sand. Soil and groundwater samples from silt or clayey silt were collected to evaluate the distribution of PCE in zones of lower permeability.



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## 4.0 CONE PENETROMETER AND DIRECT PUSH TESTING

This section provides a summary of the objective, activities, and results of activities associated with cone penetrometer testing (CPT) logging and direct push technology (DPT) sampling.

### 4.1 CPT OBJECTIVES

Objectives of CPT logging and DPT sampling were to answer Data Quality Objective Decisions Questions Nos. 2 and 3 in the Sampling and Analysis Plan to the *Final West-Side Aquifers Treatment System Optimization Work Plan Addendum 1* (Tetra Tech FW, Inc. [TtFW], 2005a): Is tetrachloroethene (PCE) detected above action levels in the saturated zone, which would indicate a potential source area? Is PCE detected above action levels in the saturated zone downgradient from the source area? Specifically, the objectives were to:

- Compare CPT logs with adjacent corehole lithologic logs.
- Evaluate CPT logs and soil core analytical data to identify lithologic layers for sampling.
- Collect groundwater and soil samples needed to evaluate PCE extent.
- Collect groundwater and soil samples needed to evaluate environmental response actions.

### 4.2 CPT/DPT FIELD ACTIVITIES

The activities associated with CPT logging and sampling were the following:

- Geophysical survey for underground utilities
- CPT logging
- DPT groundwater HydroPunch<sup>®</sup> sampling for volatile organic compounds (VOCs), anions, cations, and treatability studies
- DPT soil sampling for VOCs, total organic carbon (TOC), and treatability studies
- Boring backfilling, site restoration, and surveying

Twenty-three CPT/DPT locations were logged in accordance with the *Final West-Side Aquifers Treatment System Optimization Work Plan Addendum 1* (TtFW, 2005a). CPT/DPT locations are shown on Figures 4-1 and 4-2. Three borings were advanced at each CPT/DPT location. The initial CPT boring was advanced to collect geologic information. This site-specific geologic information was used to select depth-specific intervals for DPT groundwater and soil sampling from the remaining two borings. After collecting the geologic information, the initial CPT boring was properly backfilled with a Portland cement-bentonite grout mixture using a tremie pipe. The second boring was advanced using DPT equipment to collect depth-specific groundwater

samples. The second boring was located about 4 feet away from the first boring and was always used to collect groundwater samples to minimize the potential for grout slurry infiltration from adjacent borings. After collecting groundwater samples, the second boring was properly backfilled. The third boring was located about 4 feet away from the second boring. The third boring was advanced using DPT equipment to collect depth-specific soil samples. After collecting the soil samples, the third boring was properly backfilled. Finally, the site was restored to the pre-investigation condition. Corresponding DPT groundwater and soil sampling borings were not given a distinct name from the CPT boring. All DPT borings for groundwater and soil sampling were identified by the initial CPT boring identification.

CPT/DPT locations were logged and sampled between April 11 and May 6, 2005. Underground Service Alert was notified, a geophysical survey performed to locate underground utilities, and each borehole was cleared by hand-augering to 5 feet below ground surface (bgs) (see Appendix A, Photograph A-10).

CPT-88-1 was located about 2 feet south of Sump 66, as shown on Figure 4-2. CPT-88-1 was located about 8 feet south of continuous core boring CC-88-2 to ensure that samples collected at the CPT location would not be compromised by cement-bentonite grout used to backfill the continuous core boring. CPT-88-1 through CPT-88-4, CPT-88-9, and CPT-88-10 were located at the former Building 88 area, as originally proposed (see Figure 4-2). CPT-88-5 through CPT-88-8, CPT-88-11, and CPT-88-12 were located downgradient of the Building 88 footprint, as originally proposed (see Figure 4-1). CPT-88-13, CPT-88-15, CPT-88-19, and CPT-88-20 were located along the sewer line to investigate soil gas hot spots. CPT-88-14, CPT-88-16, CPT-88-17, CPT-88-18, CPT-88-21, CPT-88-22, and CPT-88-23 were located as step-outs (see Figures 4-1 and 4-2). CPT/DPT activity photographs were included in Appendix A.

#### 4.2.1 CPT Lithologic Logs

CPT logging consisted of collecting continuous geologic information from 5 to 60 feet bgs. CPT-88-1, CPT-88-3, CPT-88-9, and CPT-88-10 were located 4 to 8 feet from the continuous soil cores borings CC-88-2, CC-88-3, CC-88-5, CC-88-4, respectively. The spacing was selected to enable CPT lithologic log to continuous core lithologic log correlation (see Section 4.3.1) and to minimize the potential for grout slurry infiltration from the backfilled continuous core borings to adversely affect DPT sample quality. CPT-88-6 was located approximately 20 feet from CC-88-1. The spacing was a departure from the *Final West-Side Aquifers Treatment System Work Plan* (Foster Wheeler Environmental Corporation, 2003), but facilitated traffic flow in the parking area where CPT-88-6 and CC-88-1 were located. CPT lithologic logs are included in Appendix E.

#### 4.2.2 Groundwater Sampling

At each CPT logging location, a DPT boring was advanced to the desired depth intervals for groundwater sampling using HydroPunch® equipment. Groundwater samples were collected or attempted at the depth intervals described in Section 3.3.2. Groundwater samples were collected over an exposed 2-foot screen interval using a disposable Teflon™ bailer. A total of 116 depth-specific groundwater HydroPunch® samples were collected from 23 CPT/DPT locations. The HydroPunch® screen was left open to the formation for at least 20 minutes (as specified in the Sampling and Analysis Plan to the *Final West-Side Aquifers Treatment System Optimization Work Plan Addendum 1* [TiFW, 2005a]) to allow groundwater to enter the screen at each sample interval. Groundwater could not be collected in 17 sampling intervals, as there was no groundwater within the well screen or there was insufficient volume for sampling after waiting at least 20 minutes with the HydroPunch® screen left open to the formation. These attempted sampling intervals are indicated with a “no water” note on the CPT logs (see Appendix E). Groundwater samples were analyzed for VOCs, anions, and cations. Four groundwater samples were analyzed for microorganisms (two collected from location CPT-88-3 and two collected from location CPT-88-19). One groundwater sample (collected from location CPT-88-3) was retained for chemical oxidation treatability studies.

#### 4.2.3 Soil Sampling

At each CPT logging location, a second DPT boring was advanced to the same depth as the previously collected groundwater samples to obtain soil samples using coring equipment. The coring equipment consisted of a 1-foot-long, nominal 1-inch-diameter core tube, with two 6-inch-long stainless steel liners. Soil samples were collected by pushing an En Core® sampler directly into the end of the soil filled core liners. A total of 136 soil samples were collected from 23 CPT/DPT boring locations. Not all soil sampling attempts were successful. Occasionally, the retrieved soil sample core barrel contained insufficient soil sample volume. A second attempt to collect a soil sample was made at intervals where the first attempt was unsuccessful. Intervals where soils could not be obtained are indicated with a “no recovery” note on the CPT logs (see Appendix E). Soil samples were analyzed for VOCs and TOC. Four soil samples were analyzed for microorganisms (two collected from location CPT-88-3 at the depth interval of 10 to 14 feet bgs and 46 to 48 feet bgs, and two collected from location CPT-88-19 at the depth interval of 6 to 9 feet bgs and 47 to 50 feet bgs).

#### 4.2.4 CPT/DPT Boring Backfilling and Location Survey

CPT lithologic borings, DPT groundwater sample borings, and DPT soil sample borings were backfilled immediately after completion. Each boring was backfilled with a Portland cement-benonite grout mixture pumped from the bottom of the boring using a tremie pipe in accordance with Santa Clara Valley Water District permit requirements. Boring permits are included in Appendix E. CPT/DPT borings located in paved areas were repaved to match the existing

surface. CPT horizontal and vertical coordinates were surveyed. Survey data for the CPT/DPT locations were included in Appendix C.

### 4.3 CPT ACTIVITY RESULTS

The CPT lithologic logs were correlated to field geologists logs (see Section 3.3.1) at locations with adjacent coreholes. Saturated zone PCE source areas were identified near Sump 66, the northern remedial excavation areas, and along the sewer alignment. Downgradient groundwater and soil PCE distribution were evaluated. CPT groundwater and soil analytical results are included in Tables 4-1 and 4-2. Activity results are summarized below.

#### 4.3.1 CPT Lithologic Log Correlation

Lithologic logs were produced for 23 CPT locations, which included five locations adjacent to continuous soil core borings. The CPT lithologic logs located adjacent to the continuous soil core borings were compared to the field geologist's lithologic logs of the continuous soil core borings (see Section 3.3.1). Fine-grained intervals reported on the field geologist's lithologic logs of the continuous soil core boring were consistently interpreted by the CPT lithologic log. Therefore, CPT lithologic logs are used for the interpretation of fine-grained lithology.

Coarse-grained intervals between 40 and 60 feet bgs were consistently reported by the field geologist and interpreted from the CPT lithologic log. The correlation of coarse-grained units was not as consistent above 40 feet bgs. For example, at location CPT-88-3 and boring CC-88-3, three intervals logged by the field geologist as fine sand and fine-to-coarse sand for the continuous soil core were interpreted as silt on the CPT lithologic log. The discrepancies in coarse-grained descriptions between the field geologist's continuous soil core logs and the CPT lithologic log could be due to formation changes over the short distance between the continuous core boring location and the CPT boring location. CPT borings were drilled about 8 feet from continuous soil core locations to avoid compromising the groundwater or soil sample integrity from the co-located DPT borings due to potential grout slurry infiltration. Discontinuity in coarse-grained soil, particularly between 20 and 40 feet bgs, is common throughout the Building 88 study area. Therefore, CPT lithologic logs are used for the interpretation of coarse-grained lithology.

A comparison of each of the field geologist's lithologic logs of the soil core boring to the corresponding CPT well pair is presented below. Lithologic symbols used below are based on the Unified Soil Classification System (USCS), as described in *Visual Classification of Soil* (Bureau of Reclamation, 1986) and the *2000 Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)* (American Society for Testing and Materials D2488-00). Lithology of CPT lithologic logs are not based on the USCS, thus a USCS lithologic symbol is not applied.

- CPT-88-1 was located about 8 feet south of continuous soil core boring CC-88-2 in the Sump 66 area. The geologic interpretations correlate well, with one exception. A sand and gravelly sand interval from 23 to 26 feet bgs interpreted on the CPT lithologic log is described by the field geologist as silt with sand (ML) on the continuous soil core lithologic log. However, the field geologist's description of the continuous core includes a 0.5-foot-thick fine-to-coarse sand with silty sand interval (SW-SM) from 26 to 26.5 feet bgs. The difference is likely due to a change in the depositional/erosional environment over the distance between the soil core and CPT boring.
- CPT-88-3 was located 8 feet southeast of continuous soil core boring CC-88-3 in the northern excavation area of the Building 88 footprint. Fine-grained geologic interpretations correlated well. However, the continuous soil core, logged by the field geologist as fine sand (SP) from approximately 14 to 15 feet bgs and 18 to 20 feet bgs, and as fine-to-coarse sand with gravel (SW) from 25 to 27 feet bgs, were interpreted as silt on the CPT lithologic log. Although these intervals were interpreted as silt on the CPT lithologic log, the three intervals had slightly elevated cone bearing readings and zero pore water pressure measurements (see the CPT data), which are usually indicators of more permeable soil, such as sand. The sandy soil (SW) between approximately 41 and 48 feet bgs appeared on both the field geologist's description of the continuous soil core and the CPT lithologic logs.
- CPT-88-6 was located 20 feet west of continuous soil core boring CC-88-1, hydraulically downgradient of the Building 88 footprint. The fine- and coarse-grained soils correlate well on both logs, with the following exceptions. Silty sand to sand and gravel (SM to SP), described by the field geologist in the continuous soil core between 13.5 and 16.5 feet bgs, 33 and 36 feet bgs, and 51 to 52.5 feet bgs, are interpreted as silt and clayey silt on the CPT lithologic logs. The distance between the CPT boring and continuous core location (20 feet apart) is the greatest of the five CPT/continuous soil core pairs. The difference is likely due to a change in the depositional/erosional environment over the distance between the soil core and CPT boring.
- CPT-88-9 was located 4 feet west of continuous soil core boring CC-88-5 in the southern remedial excavation area of the Building 88 footprint. No comparison is possible in the upper section of the borings, as a core was not recovered from 5 to 24 feet bgs. The initial 5-foot core (from 5 to 10 feet bgs) was plugged due to backfill/construction debris blocking the barrel. Within the 10- to 24-foot depth at CC-88-5, several options were attempted to increase core recovery, such as (1) changing the "sand catcher" at the end of the core barrel, (2) changing the core barrel length from 5 feet to 2.5 feet, and (3) loading the boring with water to prevent sand heave. These steps did not improve core recovery in this particular zone. CPT fine-grained soil correlates well on both lithologic logs. Two sand intervals from 42 to 44 feet bgs (SP) and 48 to 49 feet bgs (SW) were detected in both lithologic logs, showing a good correlation with respect to coarse-grained lithology below 40 feet bgs.

- CPT-88-10 was located 8 feet south of continuous soil core boring CC-88-4 in the Tank 68 area. The CPT and continuous soil core lithologic logs correlate well. A gravely sand interval from 23 to 26 feet bgs on the CPT lithologic log correlates to a zone of no recovery on the field geologist's continuous core lithologic log. A gravely sand interval (SW), beginning at 41 feet bgs, was recorded on both lithologic logs. The soil core from 42.5 to 49 feet bgs was not recovered and was estimated by the field geologist to be coarse-grained soil.

CPT logs were included in Appendix E.

#### 4.3.2 Groundwater and Soil Analytical Results

A summary of the groundwater VOC, anion, and cation analytical results were included in Table 4-1. A summary of the soil VOC and TOC results were included in Table 4-2. Laboratory analytical results reports were included in Appendix B. Groundwater and soil sample quality is described in Section 7.0.

Sample analytical results indicated the presence of two potential continuing PCE source areas (interpreted as soil PCE concentrations greater than 480 micrograms per kilograms [ $\mu\text{g/kg}$ ]). The U.S. Environmental Protection Agency (EPA) Region 9 residential soils Preliminary Remediation Goal (PRG) of 480  $\mu\text{g/kg}$  for PCE was used for the site screening value for soils. The residential soil PRG's role in site screening was to help identify areas that may require further attention. The residential soils PRG for PCE is slightly lower than the cleanup level identified in the Middlefield-Ellis-Whisman Record of Decision (soil remediation standard for PCE of 100 times the corresponding groundwater value of 5  $\mu\text{g/L}$  – 500  $\mu\text{g/kg}$ ). The two potential continuing source areas included along the sewer line in the traffic island area at the intersection of Wescoat Road and Cummins Avenue (locations CPT-88-13, CPT-88-23, and CPT-88-19), and the northern and eastern portion of the Building 88 footprint (locations CPT-88-1, CPT-88-3, and CPT-88-22) (see Figures 4-1 and 4-2). The maximum soil PCE concentration of 7,000  $\mu\text{g/kg}$  was detected in a soil sample from the DPT boring at location CPT-88-13 between 8 and 9 feet bgs. The maximum groundwater PCE concentration of 15,000 micrograms per liter ( $\mu\text{g/L}$ ) was detected in a groundwater sample from the DPT boring at location CPT-88-13 between 17 and 19 feet bgs. Potential source areas and contaminant distribution are described in Section 9.0.

Groundwater PCE concentrations in areas other than the Building 88 footprint and along the sewer alignment ranged from below the laboratory reporting limit of 0.5  $\mu\text{g/L}$  to an estimated concentration of 2,100  $\mu\text{g/L}$  in a groundwater sample from the DPT boring at location CPT-88-15 between 56 and 59 feet bgs, located about 25 feet hydraulically downgradient from the eastern portion of the Building 88 footprint. Soil PCE concentrations in areas other than the Building 88 footprint and along the sewer alignment ranged from below the laboratory reporting

limit of 6 µg/kg to 300 µg/kg in a soil sample from the DPT boring at location CPT-88-15 between 36.5 and 37.5 feet bgs. In areas other than the Building 88 footprint and along the sewer alignment, soil PCE concentrations were most often at, or less than, the laboratory reporting limit of 6 µg/kg. Contaminant distribution, fate, and transport are described in Section 9.0. Chemical oxidation treatability test results and biological treatability results are described in Section 10.0.



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## **5.0 GROUNDWATER MONITORING WELL INSTALLATION**

This section provides a summary of the objective, activities, and results of the installation of B2 aquifer zone groundwater monitoring wells.

### **5.1 GROUNDWATER MONITORING WELL INSTALLATION OBJECTIVE**

The objective of groundwater monitoring well installation was to determine if tetrachloroethene (PCE) concentrations impact the B2 aquifer zone. Evaluation of potential PCE impacts to the B2 aquifer zone was not an original Data Quality Objective, but was implemented because of PCE concentrations detected in a groundwater sample collected from the bottom of the A aquifer. Soil and groundwater PCE concentrations in the bottom samples (a depth of about 60 feet below ground surface [bgs]) from the direct push technology (DPT) boring at location CPT-88-13 (the traffic island at the intersection of Cummins Avenue, Wescoat Road, and Cody Road) were estimated at 2,700 micrograms per kilogram ( $\mu\text{g}/\text{kg}$ ) and 2,000 micrograms per liter ( $\mu\text{g}/\text{L}$ ), respectively.

### **5.2 GROUNDWATER MONITORING WELL INSTALLATION ACTIVITIES**

The activities associated with conducting groundwater monitoring well installation were the following:

- Geophysical survey for underground utilities, as required
- Drilling (using a sonic drill rig) to collect a continuous core
- Logging the core by a field geologist
- Soil sampling of select intervals for VOCs and total organic carbon (TOC) analysis
- Monitoring well construction
- Monitoring well development
- Site restoration and surveying

B2 aquifer zone monitoring well W88-1 was drilled and installed at location CPT-88-13 because of the detected PCE concentrations at 60 feet bgs (considered to be the bottom of the A aquifer), and the lack of a B2 aquifer zone monitoring wells located immediately downgradient of this location. Two additional B2 aquifer zone monitoring wells were installed generally hydraulically downgradient of location CPT-88-13, one located to the north of Hangar 1 (W88-2) and the other located in a parking lot on the northwest corner of Severyns Avenue and North Akron Road (W88-3) (Figure 5-1). The new B2 aquifer zone groundwater monitoring wells were installed between July 26 and August 3, 2005.

Lithologic symbols used in the following sections are based on the Unified Soils Classification System (USCS), as described in *Visual Classification of Soil* (Bureau of Reclamation, 1986) and the *2000 Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)* (American Society for Testing and Materials D2488-00). Lithology of cone penetrometer testing (CPT) lithologic logs are not based on the Unified Soil Classification System USCS; thus a USCS lithologic symbol is not applied.

### 5.2.1 Monitoring Well Drilling

A sonic drill rig was used to drill the borings for the three new B2 aquifer zone monitoring wells. For monitoring well W88-1, the backfilled CPT boring CPT-88-13 was over-drilled to the total depth of the CPT boring (60 feet bgs) using a nominal 9-inch-diameter drill pipe. The CPT lithologic log for location CPT-88-13 (see Appendix E) at 60 feet bgs showed a gravelly sand grading to a sandy silt (permeable material) at the bottom of the boring. The 9-inch drill pipe was advanced to 67 feet bgs. The soil core from 65 to 67 feet bgs was logged by the field geologist as a clay (CL) (see Appendix D). The soil core was logged by the same California Professional Geologist that logged the augered soil cores (see Section 3.0). In order to prevent potential drag-down of the overlying contaminated soils and groundwater, the bottom 5 feet of the drill pipe was filled with bentonite chips. The nominal 9-inch drill pipe was then pulled back 5 feet, and the bentonite chips were allowed to hydrate for 60 minutes. The nominal 9-inch drill pipe was then pushed ahead to a depth of 68 feet bgs (1 foot ahead of the previous open borehole). This procedure smeared bentonite on the outside of the nominal 9-inch drill pipe and seated the drill pipe into the undisturbed soils. The inside of the nominal 9-inch drill pipe was cleaned out of soil and groundwater, and drilling proceeded using a nominal 8-inch drill pipe. Drilling and lithologic logging proceeded to select the appropriate depth for setting the well screen. Soil samples for the lower portion of the borings for the new B2 aquifer zone monitoring wells were collected from the roto-sonic continuous core. Intervals of potential interest were collected into plastic bag and placed on ice. The material collected ranged in intervals of core from 0.5 foot to 2.5 feet. Latter, after logging, sample intervals were selected for analysis. An En Core<sup>®</sup> sampler was then pushed into the soils within the bag to collect the sample analysis. Soil samples were collected from the soil core at depths of 70 to 70.5 feet bgs and at 73 to 73.5 feet bgs. Drilling was terminated at a total depth of 97 feet bgs. The boring log was provided in Appendix D. Soil sample analytical results are included in Table 5-1.

For monitoring well W88-2, the decommissioned CPT boring WO-CPT2 (used to locate extraction well EA2-3 [see Appendix E for CPT lithologic log]) was over-drilled to the total depth of the CPT boring (65 feet bgs) using nominal 9-inch-diameter drill pipe. The CPT lithologic log for location WO-CPT2 at 62 to 64 feet bgs showed a clay soil. The 9-inch drill pipe was advanced to 62 feet bgs. In order to prevent the drag-down of the overlying potentially

contaminated soils and groundwater, the same step-down casing procedures were followed as described previously for drilling of the boring for monitoring well W88-1. A soil sample was collected from the soil core as described previously for soil sampling at monitoring well W88-1 at a depth of 77 to 79.5 feet bgs. Drilling was terminated at a total depth of 97 feet bgs. The boring lithologic log is provided in Appendix D. Soil sample analytical results are included in Table 5-1.

For monitoring well W88-3, the boring was continuously logged from land surface, since there was no CPT lithologic log at this location. A 9-inch drill pipe was advanced to 62 feet bgs, where a clay (CL) soil was encountered. In order to prevent the drag-down of the overlying potentially contaminated soils and groundwater, the same step-down casing procedures were followed as described previously for drilling of the borings for monitoring wells W88-1 and W88-2. Soil samples were collected from the soil core as described previously for soil sampling at monitoring well W88-1 at depths of 62 to 64 feet bgs and at 86 to 87 feet bgs. Drilling was terminated at a total depth of 97 feet bgs. The boring lithologic log is provided in Appendix D. Soil sample analytical results are included in Table 5-1.

## **5.2.2 Monitoring Well Construction**

Monitoring well W88-1 was constructed inside the drill pipe. For monitoring well W88-1, the bottom of the borehole from 84 to 97 feet bgs was backfilled with bentonite chips, as the nominal 8-inch drill pipe was withdrawn. A 10-foot-long, nominal 4-inch-diameter, 10-slot (0.01-inch), wire-wrapped, stainless steel well screen was set between the depths of 72 and 82 feet bgs (the depth interval with the most permeable soils – see boring lithologic log in Appendix D). Centralizers were placed below and above the well screen. A nominal 4-inch-diameter stainless-steel riser pipe was used to complete the well to the surface. A third centralizer was placed at a depth of about 50 feet bgs on the riser pipe. Filter material (#2/16 sand) was tremied around the screen interval, and 1.7 feet below and 2 feet above the screen, as the nominal 8-inch drill pipe was withdrawn. A 5-foot-thick bentonite seal was placed above the filter material, as the nominal 8-inch drill pipe was withdrawn. The nominal 8-inch drill pipe was completely removed from the boring. Then the nominal 9-inch drill pipe was pulled a couple of feet, allowing groundwater to hydrate the bentonite seal for 1 hour. Cement-bentonite grout was used to fill the remainder of the annular space to land surface, as the nominal 9-inch drill pipe was withdrawn. The surface completion was a flush-mounted, traffic-rated protective cover. A detailed monitoring well construction figure is provided on the well log in Appendix D.

Monitoring well W88-2 was constructed inside the drill pipe. For monitoring well W88-2, the bottom of the borehole from 89 to 97 feet bgs was backfilled with bentonite chips, as the nominal 8-inch drill pipe was withdrawn. A 10-foot-long well screen, similar to the well screen set in monitoring well W88-1, was set between the depths of 77 and 87 feet bgs (the depth interval with the most permeable soils – see boring lithologic log in Appendix D). The remainder of the

construction for monitoring well W88-2 was similar to the construction for monitoring well W88-1. A detailed monitoring well construction figure is provided on the well log in Appendix D.

Monitoring well W88-3 was constructed inside the drill pipe. For monitoring well W88-3, the bottom of the borehole from 89 to 97 feet bgs was backfilled with bentonite chips, as the nominal 8-inch drill pipe was withdrawn. A 10-foot-long well screen was set between the depths of 79 and 89 feet bgs (the depth interval with the most permeable soils – see boring lithologic log in Appendix D). The remainder of the construction for monitoring well W88-3 was similar to the construction for monitoring well W88-1. A detailed monitoring well construction figure is provided on the well log in Appendix D.

### **5.2.3 Monitoring Well Development**

The new B2 aquifer zone monitoring wells were developed between August 15 and 16, 2005. The monitoring wells were initially bailed to clean out any material in the bottom of the well screen using a bottom-suction bailer. Then the well screen interval was surged with a surge block. Accumulated material was removed by bailer. Finally, a submersible pump was installed just above the screen interval and the well was pumped. This surging, bailing, and pumping cycle was repeated as necessary until the field parameters stabilized, as follows:

- No visible change in the appearance of discharge water, or turbidity stabilized to less than 50 nephelometric turbidity units
- Temperature was within  $\pm 1$  degree Celsius for consecutive readings
- Conductivity was within  $\pm 5$  percent micromhos per centimeter for consecutive readings
- pH was within  $\pm 0.2$  units for consecutive readings

Well development logs for the new B2 aquifer zone monitoring wells are provided in Appendix D.

## **5.3 MONITORING WELL INSTALLATION RESULTS**

It was intended to install monitoring wells W88-1, W88-2, and W88-3 into the top of the B2 aquifer zone. All three groundwater monitoring wells were completed in permeable materials below clay or clayey layers beneath the assumed base of the A aquifer. However, a clear boundary between the A aquifer and the B2 aquifer zone has not been defined. Monitoring wells W88-1, W88-2, and W88-3 are screened in permeable soils about 10 feet higher in elevation than the other local B2 aquifer zone monitoring wells (51B2, W9-12, W9-15, 123B2, and W9-11). Based on a comparison of groundwater sample results (see Sections 4.0 and 6.0) and groundwater elevation data from the new monitoring wells and the 2004 annual sampling event (Tetra Tech FW, Inc., 2005b), it is possible to draw the following conclusions:

- Monitoring well W88-1 was completed in an area of high PCE concentrations (2,000 µg/L), high concentrations of trichloroethene (TCE) (estimated at 1,100 µg/L), and low concentrations of cis-1,2-dichloroethene (cis-1,2-DCE) (9.5 µg/L) at the bottom of the A aquifer at CPT/DPT-88-13 (see Table 4-1). The groundwater sample collected from monitoring well W88-1 in August 2005, contained low concentrations of PCE (69 µg/L), TCE (estimated at 20 µg/L), and high concentrations of cis-1,2-DCE (10,000 µg/L). The significant difference in chemical concentration suggests hydraulic isolation from the overlying A aquifer. Monitoring well W88-1 water level data were compared to water level data from nearby lower A aquifer monitoring well W9-42. Water levels differed by nearly 3 feet.

Based on the W88-1 completion depth, the difference in chemical concentrations for the sample collected from W88-1 and the HydroPunch® sample collected from the bottom of the A aquifer at CPT/DPT-88-13, and the difference in water levels, monitoring well W88-1 was completed in the B2 aquifer zone.

- Monitoring well W88-2 was completed in an area of low concentrations of TCE and cis-1,2-DCE (each less than 10 µg/L) in the lower A aquifer. The groundwater sample from monitoring well W88-2 contained low concentrations of TCE (7.2 µg/L) and cis-1,2-DCE (estimated at 0.28 µg/L). The similarity in the TCE and cis-1,2-DCE concentrations in the lower A aquifer and in the groundwater sample from well W88-2 does not distinguish the completion zone. Monitoring well W88-2 water level data were compared to water level data from nearby lower A aquifer monitoring wells and B2 aquifer zone monitoring wells. Water level data comparison does not distinguish the completion zone for well W88-2.

Based on well completion depth, it is assumed that monitoring well W88-2 was completed in the B2 aquifer zone.

- Monitoring well W88-3 was completed in an area of high concentrations of TCE (greater than 1,000 µg/L) and moderate concentrations of cis-1,2-DCE (greater than 100 µg/L) in the lower A aquifer. The groundwater sample from monitoring well W88-3 contained low concentrations of TCE (7.3 µg/L) and cis-1,2-DCE (5.3 µg/L). Monitoring well W88-3 water level data were compared to water level data from nearby lower A aquifer monitoring wells and B2 aquifer zone monitoring wells. Water level data comparison does not distinguish the completion zone for well W88-3.

Based on well completion depth and the significant differences in the TCE and cis-1,2-DCE concentrations in the lower A aquifer and in groundwater sample from well W88-3, monitoring well W88-3 was completed in the B2 aquifer zone.

Newly installed monitoring wells MW88-1, MW88-2, and MW88-3 are considered to be completed in the B2 aquifer zone.

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## 6.0 GROUNDWATER MONITORING WELL SAMPLING

This section provides a summary of the objective, activities, and results of activities associated with groundwater monitoring well sampling.

### 6.1 MONITORING WELL SAMPLING OBJECTIVES

The objective of the sampling at existing groundwater monitoring wells located downgradient of the former Building 88 was to answer Data Quality Objective Decision Question No.1 in the Sampling and Analysis Plan to the *Final West-Side Aquifers Treatment System [WATS] Optimization Work Plan Addendum 1* (Tetra Tech FW, Inc. [TtFW], 2005a): Is tetrachloroethene (PCE) detected above action levels for groundwater samples hydraulically downgradient of the potential source area? Specific targets were:

- Evaluate PCE concentration and distribution.
- Evaluate biological bait traps ([biotrap] a passive in-well biological growth medium) for substrate screening to support remedial alternative analysis.

### 6.2 MONITORING WELL SAMPLING FIELD ACTIVITIES

Activities associated with monitoring well sampling included the following:

- Purging select monitoring wells
- Collecting groundwater samples for volatile organic compound (VOC), anion, and cation analyses
- Installing and collecting biotrap

Eighteen groundwater monitoring wells were sampled in accordance with the *Final West-Side Aquifers Treatment System Optimization Work Plan Addendum 1* (TtFW, 2005a) and a field change, based on PCE concentrations detected at the total depth investigated in the traffic island. Monitoring well locations are shown on Figure 6-1. Sampled wells included 14D29A, 14D30A, W1C-1, W29-3, W29-4, W9-23, W9-46, and W9-6, screened in the upper portion of the A aquifer; W9-20, W9SC-15, and W9SC-3 screened in the lower portion of the A aquifer; and 51B2, W9-11, W9-12, W9-15, W88-1, W88-2, and W88-3 screened in the B2 aquifer zone.

#### 6.2.1 Monitoring Well Purging and Sampling

Groundwater monitoring wells were purged and sampled on April 27 and 28, 2005, except for W88-1, W88-2, and W88-3, which were purged and sampled on August 22, 2005. The PCE concentrations in samples collected from groundwater monitoring wells in April and August



2005, are shown on Figure 6-2. Groundwater monitoring wells W88-1, W88-2, W88-3, W9-12, and W9-15 were purged and sampled again on December 6 and 9, 2005.

The depth to groundwater in all monitoring wells was less than 15 feet below ground surface (bgs) allowing the use of a peristaltic pump for purging and sampling. Wells were purged by slowly lowering new high-density polyethylene (HDPE) tubing into the well to the midpoint of the screen interval, attaching the HDPE tubing to a peristaltic pump, and pumping at a low flow rate of approximately 0.2 to 0.5 liters per minute (L/min). Temperature, pH, turbidity, specific electrical conductance, oxidation-reduction potential, and dissolved oxygen were monitored approximately every 3 to 5 minutes during purging. Purging continued until indicator parameters stabilized. Flow rates were reduced to 0.1 and 0.2 L/min prior to filling volatile organic analysis vials. Field sampling data sheets are provided in Appendix F.

### **6.2.2 Biotrap Installation and Sampling**

Biological traps (biotrap) were installed in monitoring wells W9-29 and W9-46 on April 29, 2005. The biotrap were suspended within the wells in the middle of the screened interval on monofilament nylon fishing line, which was secured at the top of the well. The biotrap were approximately 2 centimeters (cm) in diameter and 10 cm long. The biotrap were baited (impregnated) with various substrates, which are commonly used to stimulate reductive dechlorination to assess the response of the in situ microbial community to a particular substrate. Analysis of preliminary substrate screening provided information regarding preferred substrate(s) on a site-specific basis, which can be used in evaluating enhanced in situ bioremediation as a remedial technique. The biotrap were installed May 31, 2005, removed 30 days later, and sent to a laboratory for analysis.

## **6.3 MONITORING WELL SAMPLING ACTIVITY RESULTS**

The results of groundwater monitoring well sampling were used to evaluate PCE distribution in the upper portion of the A aquifer, lower portion of the A aquifer, and the B2 aquifer zone hydraulically downgradient (to the north) of the former Building 88. Groundwater monitoring well samples were analyzed for VOCs, anions, and cations. Groundwater analytical results are presented in Table 6-1. Biotrap sampling results were used to evaluate potential environmental response actions. Biotrap sampling results are described in Section 10.4.

PCE concentrations for groundwater samples collected in April 2005 from the upper A aquifer monitoring wells (14D29A, WIC-1, W29-3, W29-4, and W9-46) were compared to PCE results from the December 2004 annual groundwater sampling event (TtFW, 2005b) in Table 6-2. The April 2005 PCE concentrations in groundwater samples collected from 14D29A, WIC-1, W29-3, W29-4, and W9-46 were generally consistent with the December 2004 PCE concentrations. Upper A aquifer PCE isoconcentration contours based on the December 2004 analytical results are shown on Figure 6-3. The PCE concentrations in extraction wells were not used in the

contouring process since they are not representative of the extraction well location, but rather of the area of groundwater captured by the extraction well. The PCE concentrations for groundwater samples collected in April 2005 from the upper A aquifer monitoring wells 14D30A, W9-23, and W9-6 (which were not sampled in December 2004) were consistent with the interpreted December 2004 PCE isoconcentration contours.

PCE concentrations for the lower A aquifer monitoring wells (W9-20, W9SC-15, and W9SC-3) were compared to PCE results from the December 2004 WATS annual sampling event (TtFW, 2005b) in Table 6-3. All the April 2005 lower A aquifer PCE concentrations were consistent with the interpreted December 2004 PCE isoconcentration contours. Lower A aquifer PCE isoconcentration contours based on the December 2004 analytical results are shown on Figure 6-4. The PCE concentrations in extraction wells were not used in the contouring process since they are not representative of the extraction well location, but rather of the area of groundwater captured by the extraction well.

Groundwater samples collected from four B2 aquifer zone monitoring wells (51B2 and W9-11 in April 2005, and W88-1 and W88-2 in August 2005) contained PCE at concentrations at 69 ug/L, an estimated 0.17 ug/L, an estimated 0.31 ug/L, and an estimated 0.17 ug/L, respectively. Groundwater samples collected from three other B2 aquifer zone wells (W9-12 and W9-15 in April 2005, and W88-3 in August 2005) did not contain PCE at concentrations greater than the laboratory reporting limit. A groundwater sample collected from B2 aquifer zone monitoring well W88-1 in December 2005 contained PCE at a concentration of 6 ug/L. Groundwater samples collected from four other B2 aquifer zone wells (W9-12, W9-15, W88-2, and W88-3 in December 2005) did not contain PCE at concentrations greater than the laboratory reporting limit. The August 2005 groundwater sample collected from W88-1 was obtained shortly after well construction. The PCE concentration in the groundwater sample collected from W88-1 in August 2005 appears to be impacted by drag-down during well construction. There appears to be de minimus PCE impacting the B2 aquifer.

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## 7.0 QUALITY ASSURANCE AND QUALITY CONTROL

Soil and water samples were analyzed by a state of California-certified and Navy-evaluated laboratory. Soil gas samples were analyzed in the field by a mobile laboratory. A third-party validation company performed data validation of all samples, except for soil gas samples, which were analyzed by a mobile laboratory and do not require validation. The validation was conducted in accordance with the U.S. Environmental Protection Agency (EPA) Contract Laboratory Program *National Functional Guidelines For Organic Data Review* (EPA, 1999), the Contract Laboratory Program *National Functional Guidelines for Inorganic Data Review* (EPA, 2004a), the Department of Defense (DoD) *Quality Systems Manual for Environmental Laboratories* (DoD, 2002), and the criteria specified in the *Final West-Side Aquifers Treatment System Optimization Work Plan*, Sampling and Analysis Plan (Foster Wheeler Environmental Corporation [FWENC], 2003) and Sampling and Analysis Plan Addendum of the *Final West-Side Aquifers Treatment System Optimization Work Plan Addendum 1* (Tetra Tech FW, Inc. [TiFW], 2005a). Twenty percent of the samples were validated in accordance with an EPA Level IV-equivalent protocol, and the remainder of the samples were validated in accordance with an EPA Level III-equivalent protocol. The chain-of-custody records, laboratory reports, and data validation reports for Building 88 were included in Appendix B. A detailed quality assurance (QA) and quality control (QC) description for the field sampling and laboratory analysis is included in Appendix G.

### 7.1 FIELD QUALITY CONTROL SAMPLING OBJECTIVES

Ninety-six field QC samples were collected. Field QC sampling objectives were met per the *Final West-Side Aquifers Treatment System Optimization Work Plan*, Sampling and Analysis Plan (FWENC, 2003). The following sections describe the results of the field QC sampling for the Building 88 sampling.

#### 7.1.1 Field Duplicates

Field duplicates were collected at a frequency of 1 per every 10 samples and were analyzed for the same parameters as the original sample. Field duplicates were not required for soil samples due to matrix heterogeneity.

Three field duplicates were collected for soil gas samples. All relative percent difference (RPD) values for gas samples were less than 25 percent, which was considered acceptable (FWENC, 2003).

Twenty-three groundwater field duplicates were collected. Generally the RPD values for the volatile organic compound (VOC), anion, and cation analyses could not be calculated (due to pairs with non-detect results) or were greater than 25 percent. Samples with greater than 25

percent RPD were likely the result of high sediment content typical of the HydroPunch® sampling method. Results were qualified with a “J” (estimated) as a result of field duplicate RPDs outside of QC limits.

### 7.1.2 Trip Blanks

Thirty-one trip blank samples were transported with the samples to the laboratory and analyzed for VOCs. Acetone was detected in several trip blanks and in some of the samples shipped with the trip blanks. Methylene chloride was detected in several trip blanks but was not detected in the samples shipped with the trip blanks. Acetone and methylene chloride are common laboratory contaminants. Acetone and methylene chloride were detected in most of the associated method blanks, and therefore, are suspected to come from the laboratory environment. Tetrachloroethene (PCE) and trichloroethene (TCE) were detected in two trip blanks. Samples that traveled in the cooler with affected trip blanks were qualified as estimated when analyte concentrations were less than five times (for non-common laboratory contaminants) or ten times (for common laboratory contaminants) the reported concentrations in the trip blank. A detailed discussion is provided in Appendix G.

### 7.1.3 Matrix Spike and Matrix Spike Duplicate

One matrix spike and matrix spike duplicate (MS/MSD) sample was collected for every 20 soil or groundwater samples. Ten MS/MSD samples were collected for the soil matrix, and 11 were collected for the water matrix. The percent recoveries and RPDs were within the specified QC limits described in the *Final West-Side Aquifers Treatment System Optimization Work Plan*, Sampling and Analysis Plan (FWENC, 2003) and *Final West-Side Aquifers Treatment System Optimization Work Plan Addendum 1* (TtFW, 2005a) for most samples. Samples were flagged “J/UJ” (estimated value) for the analytes outside the required limits. A detailed discussion is provided in Appendix G.

### 7.1.4 Equipment Rinsate

One rinsate was collected each day during Building 88 sampling, when disposable sampling equipment was not used. No analytes were reported at or above laboratory reporting limits in the equipment rinsate samples, except for total organic carbon (TOC). Results are not usually qualified based on field QC samples, such as equipment rinsates. Data were only qualified when the parameters were outside the QC limits. Therefore, no associated samples were qualified.

## 7.2 ANALYTICAL LABORATORY DATA QA/QC

The following sections describe the fulfillment of the analytical Data Quality Objectives for the Building 88 sampling, as described in the *Final West-Side Aquifers Treatment System Optimization Work Plan*, Sampling and Analysis Plan (FWENC, 2003) and *Final West-Side Aquifers Treatment System Optimization Work Plan Addendum 1* (TtFW, 2005a).

### 7.2.1 Holding Times

The direct push technology (DPT) groundwater sample collected from location CPT-88-19 at 47 to 50 feet below ground surface (bgs) did not meet holding time. Nitrate and nitrite analysis have a holding time of 48 hours, and the sample was analyzed 12 days after sample collection date due to laboratory error. For this sample, nitrate was flagged as estimated, and nitrite was flagged with an “R” (rejected) qualifier. A field duplicate groundwater sample collected from location CPT-88-19 at 47 to 50 feet bgs was analyzed within the required holding time. All other samples met holding times.

### 7.2.2 Method Blanks

Some method blanks for VOC, anion, and TOC analyses contained one or more of the following analytes - acetone, methylene chloride, cis-1,2-dichloroethene (cis-1,2-DCE), TCE, PCE, nitrite, and/or TOC. Acetone and methylene chloride were flagged “U” (less than the laboratory reporting limit) for the associated samples, if compounds were not detected above the laboratory reporting limit or if the compound concentrations were not greater than 10 times the concentrations found in the associated method blank. Cis-1,2-DCE, TCE, PCE, nitrite, and TOC were flagged as less than the laboratory reporting limit for associated samples, if compounds were not detected above the laboratory reporting limit or if the compound concentrations were not greater than five times the concentrations found in the associated method blank. Select samples were flagged as less than the laboratory reporting limit as a result of compounds found in associated method blanks. A detailed discussion is provided in Appendix G.

### 7.2.3 Surrogate Percent Recovery

The surrogate percent recoveries were outside QC limits for the groundwater samples collected from the following locations depths: CPT-88-8 at 32 to 34 feet bgs; CPT-88-23 at 18.5 to 20.5 feet bgs, 22 to 24 feet bgs, 26.5 to 28.5 feet bgs, and 30 to 32 feet bgs; and the groundwater samples (diluted for analysis) collected from monitoring wells 14D29A, 14D30A, 14D30A (field duplicate), W1C-1, W29-3 (field duplicate), W29-4, W9-6, W9-20, W9-23, W9-46, and W9SC-3. Groundwater sample dilution was required because TCE and/or cis-1,2-DCE concentrations were above the calibration range. The analytical results were flagged as estimated for all affected compounds. All other surrogate percent recoveries were within QC limits.

There were 133 DPT depth-specific groundwater samples collected. Five of these samples were outside QC limits for surrogate percent recovery – which results in 4 percent not within QC limits for the DPT groundwater samples. There were 21 groundwater samples collected (some of which were duplicates). Eleven of these samples were outside QC limits for surrogate percent recovery – which results in 50 percent not being within QC limits for the monitoring well groundwater samples. The laboratory was being overloaded with water, soils, and reanalysis samples during that time. The dilution sample was being analyzed on the last day of the holding time being out. The laboratory made a judgment call to not reanalyze these samples, since they

would be qualified anyway for being outside the holding time. The data are usable, but have been qualified as estimated, as stated in the QC report.

#### **7.2.4 Laboratory Control Samples**

All laboratory control samples were within QC limits.

#### **7.2.5 Internal Standards**

The internal standards and retention times were outside QC limits for soil samples collected from the following locations/depths: boring CC-8-3 at 9.5 to 10 feet bgs; boring CC-88-3 at 14 to 14.5 feet bgs; the DPT boring at location CPT-88-1 at 12.5 to 13.5 feet bgs; the DPT boring at location CPT-88-10 at 10.5 to 11.5 feet bgs; the DPT boring at location CPT-88-19 at 6 to 7 feet bgs and 11.5 to 12.5 feet bgs; the DPT boring at location CPT-88-22 at 12 to 13 feet bgs; and the DPT boring at location CPT-88-23 at 11 to 12 feet bgs, 16 to 17 feet bgs, 23 to 24 feet bgs, and 32 to 33 feet bgs. These samples were flagged as estimated values for compounds 4-methyl-2-pentanone and 1,1,2,2-tetrachloroethane. All other internal standards and retention times were within QC limits.

#### **7.2.6 Target Compound Identifications**

All target analytes were correctly identified.

#### **7.2.7 Compound Quantitation**

Nitrates and some VOCs were reported incorrectly by the laboratory. Corrective action was implemented, and amended reports were submitted. Amended report pages are included in Appendix B.

#### **7.2.8 System Performance**

System performance met all QC requirements.

#### **7.2.9 Completeness**

The HydroPunch<sup>®</sup> groundwater sample from the DPT boring at location CPT-88-19 at 47 to 50 feet bgs did not meet the holding time requirements for nitrate and nitrite. Nitrite was flagged “R” for rejected. The percent completeness for soil is 100 percent and 99 percent for water.

### **7.3 OVERALL ASSESSMENT OF DATA**

Overall, the quality of data collected from the Building 88 sampling is valid and usable. Most of the soil and groundwater samples for VOC analysis had high concentrations of cis-1,2-DCE, PCE, and TCE, requiring samples to be diluted. There was a large disparity in the calculated results of diluted and undiluted analyses for soil and HydroPunch<sup>®</sup> groundwater samples.

A combination of factors, including heterogeneity of the soil composition, internal standard recovery, matrix interference, and/or dilution factors could account for the disparity in calculated results. The higher of the two VOC concentrations (undiluted or diluted) from the soil and HydroPunch<sup>®</sup> groundwater samples was used for evaluation in this report to be conservative. VOC concentrations from undiluted and diluted analysis for the groundwater monitoring well samples exhibited no significant variability between different dilutions; therefore, the concentrations from higher dilution analysis was reported. Sulfate and metals analysis also required dilutions. However, only the diluted concentrations were reported because there was no significant variability identified for the two analyses.



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## 8.0 GEOLOGY AND HYDROGEOLOGY

This section provides an update of the reported geologic and hydrogeologic conditions in the *West-Side Aquifers Treatment System [WATS] Optimization Completion Report* (Tetra Tech FW, Inc. [TiFW], 2005c) using the geologic and geochemical data gathered during the Building 88 investigation. The Building 88 investigation area focused on the southern portion of the WATS area, but included some limited data throughout the WATS area. The WATS area is generally bounded by Hangar 1 to the east, McCord Avenue to the west, King Road to the north, and a line approximately 300 feet south of Wescoat Road to the south.

### 8.1 GEOLOGIC ENVIRONMENT

Regionally, the northwesterly trending Santa Clara Valley Basin contains interbedded alluvial, fluvial, and estuarine deposits to a depth of as much as 1,500 feet (Iwamura, 1980). Soils consist of varying combinations of clay, silt, sand, and gravel that represent the interfingering of estuarine and alluvial depositional environments during the late Pleistocene and the Holocene epochs. The fluvial soils were derived from the Santa Cruz highlands west of the basin and deposited on an alluvial plain bounded by alluvial fan deposits to the west and baylands to the northeast (Iwamura, 1980). In general, thicker intervals of sand and gravel and discontinuous intervals of clays and silt are found proximal to the upper alluvial fan deposits. The sand and gravel intervals are thin, and clay and silt intervals become thicker and laterally continuous close to the axis of the basin and distal from the fan deposits.

### 8.2 LOCAL GEOLOGY

The Building 88 investigation area subsurface is characterized by interbedded sand, silt, and clay deposits. The following descriptions are based on the continuous soil core boring logs and direct push technology (DPT) soil core. Lithologic symbols are based on the Unified Soil Classification System (USCS), as described in *Visual Classification of Soil* (Bureau of Reclamation, 1986) and the *2000 Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)* (American Society for Testing and Materials D2488-00). Color has been coded using the *Munsell Soil Color Charts* (Gretag Macbeth, 1990 revised edition).

Sand soils ranged from fine sand with silt to medium and coarse, subrounded to subangular sand with fine subangular gravel. Sand was often dark brown (10YR 4/3) or dark grayish-brown (2.5Y 4/2) in color. Sand soil thickness ranged from approximately 6 inches (SW-SM) in boring CC-88-2 at a depth interval of 26 to 26.5 feet below ground surface [bgs]) to approximately 7 feet

(soil sample from the DPT boring at location cone penetrometer testing CPT-88-1 at a depth interval of 29 to 36 feet bgs).

Silt soils ranged from fines with low to medium plasticity, to non-plastic fines with fine to medium sand. The low to medium plasticity observed in some silt soils was an indication of some clay content. Silt color ranged from variations of gray (5Y 5/1) and brown (10YR 5/3) to very dark gray (2.5Y 4/N). Groundwater was not always observable in silt soils with low plasticity with two exceptions; groundwater was observed in fine sand-filled fractures (possibly root casts) in soil samples from borings CC-88-3, CC-88-4, and CC-88-5 at approximately 36 to 37 feet bgs (see Appendix A, Photograph A9). Silt soil thickness range from 6 inches (ML in boring CC-88-1 at a depth interval of 5.5 to 6 feet bgs) to 12 feet (ML in boring CC-88-2 at a depth interval of 32 to 44 feet bgs).

Clay soils contained fines with high plasticity and fine to medium sand and occasionally with a trace amount of gravel. Clay soils were often dense and massive, up to 9.5 feet thick (CL in boring CC-88-2 at a depth interval of 1 to 11 feet bgs). Near the surface to approximately 20 feet bgs, clay was often dark grayish-brown (10YR 4/2) to black (2.5Y N2/). Clay soils often included intervals of subangular calcareous nodules ranging in size from coarse sand to fine gravel from near ground surface to total depth. The intervals of calcareous nodules were found in lighter colored soil, usually grayish-brown (10YR 5/2), within a darker clay soil. Groundwater was not observed in clay samples.

### 8.3 LOCAL HYDROSTRATIGRAPHY

Within the vicinity of WATS, the depositional environment was fluvial, characterized by north-trending anastomosing channels and discontinuous finer-grained interchannel and overbank deposits (TiFW, 2005a). The channels generally trend northwest to southeast, becoming more northerly in the vicinity of WATS. Thicker more continuous channels of sands and gravels trending northwest to southeast exist south of Highway 101, as discussed by Iwamura (1995). In order to better understand the subsurface conditions beneath and hydraulically downgradient of the Building 88 area, lithologic data obtained from the core and CPT borings were correlated. A series of hydrostratigraphic cross sections and a fence diagram were constructed to better understand the subsurface relationships of the interbedded permeable (coarse-grained) soil and non-permeable (fine-grained) soil layers (Figure 8-1). Cross sections A-A' through C-C' are included as Plate 8-1. The fence diagram is included as Plate 8-2. Coarse-grained soil distribution maps were generated based on the cross section correlations, combined with additional data from the *West-Side Aquifers Treatment System Optimization Completion Report* (TiFW, 2005c) and boring logs from adjacent groundwater monitoring wells. These maps are included as Figures 8-2 through 8-5. The coarse-grained soil distribution plots have been used to evaluate preferred pathways of dissolved phase chemical transport in the A aquifer. This

information was used for the construction of the isoconcentration plots of tetrachloroethene (PCE) in the upper and lower portion of the A aquifer.

The cross sections and fence diagram were constructed using subsurface lithologic data from the 23 CPT borings. These data were translated to Unified Soils Classification System (USCS) codes (Table 8-1), and input manually into Rockworks™ 2004, an integrated geological visualization software package. Once the data were entered into the program, a 3-dimensional lithology solid model was generated. The three-dimensional lithology model uses a proprietary horizontal lithoblending algorithm that assigns each model node (in this case, the XYZ dimensions were set to 15 feet by 15 feet by 0.25 feet) a lithology value (such as clay) starting at the nodes closest to the boreholes and expanding in ever-widening circles until a different lithology value is encountered (such as silt). The resulting lithology model was then viewed in three-dimensional space to ensure applicability of the modeling algorithm in keeping with the interpreted fluvial environment of deposition. The resultant channel morphology and overbank occurrences (discontinuous clays and silts) as depicted in the model were determined to be an adequate representation of fluvial environments of deposition. The cross sections represent slices through the solid model and illustrate the geology and hydrostratigraphy at the Building 88 area. The fence diagram composites the three cross sections shown on Figure 8-1.

The subsurface beneath the Building 88 investigation area is characterized by interbedded coarse-grained soil (sands and gravels) and fine-grained soil (silts and clays). Distribution of coarse- and fine-grained soil differ based on location and depth. The coarse-grained soil, where continuous, trends generally north-south and is consistent with the regional interpretation.

Cross section A-A' is oriented west-east, looking toward the north, extending from the Building 88 footprint toward the intersection of Wescoat Road and Cummins Avenue (traffic island), and is orthogonal to the north-south regional depositional trend (see Plate 8-1). As shown in cross section A-A', there appears to be no continuous coarse-grained soil from the Building 88 footprint east to the traffic island. The coarse-grained intervals are thicker and more prevalent toward the east (traffic island). Cross section B-B' is oriented northwest-southeast, looking toward the northeast, extending from the northernmost CPT location (CPT 88-12) along the Cummins Avenue sewer alignment to the traffic island. Cross section B-B' illustrates the apparent lack of continuous coarse-grained soil from the traffic island area to the north along the Cummins Avenue sewer alignment (between CPT-88-13 and CPT-88-19). Cross section C-C' is also oriented northwest-southeast, looking toward the northeast, from CPT-88-11 to the vicinity of the Building 88 area and is located to the west and roughly parallel to cross section B-B'. Only one coarse-grained interval (at approximately -22 to -24 feet mean sea level) shows lateral continuity between CPT 88-11 to the north and the Building 88 area to the south.

The upper 17 feet of the investigation area contains mostly fine-grained soil, with isolated native coarse-grained deposits. Anastomosing coarse-grained soil channels are observed from approximately 20 feet to approximately 32 feet bgs, and are interbedded with fine-grained overbank deposits (see Figures 8-2 and 8-3). These channels are observed at depth intervals of approximately 20 to 25 feet bgs and 29 to 32 feet bgs, and are encased in fine-grained soil. The channels are depicted as continuous, but based on the cross sections and fence diagram (see Plates 8-1 and 8-2) these channels can also be interpreted as a series of laterally and vertically interconnected segments of channels. The depicted locations of the channels in the areas of the WATS extraction wells EA1-1, EA1-2, and EA1-3 are consistent with historic pumping rates from those wells (TtFW, 2005b). The thickness of the channels varies spatially, but averages approximately 2 feet. Based on the cross sections and fence diagram (see Plates 8-1 and 8-2), there appears to be little to no single coarse-grained layer vertically connecting these two intervals. However, based on water levels shown in the upper portion of the A aquifer in December 2004 in the area of WATS extraction well EA2-2 (TtFW, 2005b), there is hydraulic communication between the lower portion of the A aquifer and the upper portion of the A aquifer.

Two relatively continuous channel deposits of coarse-grained soil are observed from approximately 40 to 46 feet bgs and 45 to 52 feet bgs in the western portion of the study area (see Figures 8-4 and 8-5). The channels are depicted as continuous, but based on the cross sections and fence diagram (see Plates 8-1 and 8-2) these channels can also be interpreted as a series of laterally and vertically interconnected segments of channels. The depicted locations of the channels in the area of the WATS extraction wells EA2-1 and EA2-2 are consistent with historic pumping rates from those wells (TtFW, 2005b). The deposits range in thickness from approximately 1 to 6 feet, and are separated by approximately 1 to 4 feet of silt. Based on water levels shown in the upper portion of the A aquifer in December 2004, in the area of WATS extraction well EA2-2 (TtEC, 2005b), there is hydraulic communication between the lower portion of the A aquifer and the upper portion of the A aquifer.

The distribution of coarse-grained and fine-grained sediment layers above approximately 35 feet bgs (analogous to the upper portion of the A aquifer) and below 35 feet bgs (analogous to the lower portion of the A aquifer) suggests two separate fluvial depositional environments. The discontinuous nature of the coarse-grained layers encased in fine-grained soil from surface to 35 feet bgs is typical of a braided fluvial environment. The deposits apparent below 40 feet bgs may be indicative of a floodplain environment. This interpretation of differing hydrogeologic conditions is consistent with what was observed during pump testing, as described in the *West-Side Aquifers Treatment System Optimization Completion Report* (TtFW, 2005c).

## 8.4 CLASSIFICATION OF GROUNDWATER

Groundwater samples collected from the DPT borings were analyzed for major cations (sodium, potassium, calcium, and magnesium) and major anions (chloride, sulfate, bicarbonate, and nitrite), as described in Section 4.0. Results were listed by location and depth in Table 4-1. To assess the completeness of the ionic data, an ionic balance for each set of samples was calculated using Rockworks™ 2004. The program calculates ionic balance using the following equation, with ion concentration expressed as milliequivalents per liter.

$$\frac{\text{cations} - \text{anions}}{\text{cations} + \text{anions}} \times 100 = \text{ionic balance as a percentage}$$

Values within 5 to 10 percent are considered balanced. Results of the ionic balance are presented in Table 8-2 and indicate that none of the groundwater samples collected during this investigation are within 5 to 10 percent. For all of the groundwater samples, there was a positive imbalance (an apparent large mass of cations). The imbalance appears to be caused by the method of groundwater sample collection (HydroPunch® using a bailer). The field geologist reported that the samples were turbid, but followed the Sampling and Analysis Plan to the *Final West-Side Aquifers Treatment Systems Optimization Work Plan Addendum 1* (TtFW, 2005a), which did not specify field filtering. The groundwater samples for cation analysis were stabilized (acidified) in the field, which resulted in an artificial increase in mass of the cations. The results described below should be used with caution.

The majority of the data suggest a calcium/sulfate water, with the outliers representing samples collected from the DPT boring at location CPT-88-13 (the location with the highest tetrachloroethene concentrations) or those collected from the DPT boring at location CPT-88-12 (the location furthest downgradient of the source areas). The data do not suggest spatial variance (vertically or laterally) and limited variance in chemical composition. The similarity in water vertically and laterally is interpreted to suggest that there is hydraulic communication vertically and laterally within the A aquifer.

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## **9.0 SOURCE EVALUATION AND CONTAMINANT FATE AND TRANSPORT**

For this investigation, soil with tetrachloroethene (PCE) concentrations greater than the U.S. Environmental Protection Agency (EPA) Region 9 residential Preliminary Remediation Goal (PRG) of 480 micrograms per kilogram ( $\mu\text{g/kg}$ ) (EPA, 2004b) was considered a PCE source area. The EPA Region 9 residential soils PRG of 480  $\mu\text{g/kg}$  for PCE was used for the site screening value for soils. The residential soils PRG's role in site screening is to help identify areas that may require further attention. The residential soils PRG for PCE is slightly lower than the cleanup level identified in the Middlefield-Ellis-Whisman Record of Decision (soil remediation standard for PCE of 100 times the corresponding groundwater value of 5 micrograms per liter [ $\mu\text{g/L}$ ] – 500  $\mu\text{g/kg}$ ). It is likely that soil with PCE concentrations greater than 480  $\mu\text{g/kg}$  was historically contaminated through direct contact with PCE or PCE-containing wastewater migrating from a leaking floor drain, sump, or sewer. Two PCE source areas were identified and confirmed during the investigation: the eastern and northern portion of the Building 88 footprint and the traffic island located at the corner of Cummins Avenue and Wescoat Road (Figure 9-1).

### **9.1 PCE SOURCE AREA SOILS**

The following sections describe two source areas identified and confirmed during the investigation.

#### **9.1.1 Building 88 Area**

PCE was used at the former Building 88, the historic base dry cleaners. PCE was detected at concentrations up to 1,200 parts per billion by volume (ppbv) during the soil gas survey, primarily in the eastern portion of the building footprint (see Section 2.3). Eight direct push technology (DPT) borings and four continuous soil cores were advanced within, or adjacent to, the Building 88 footprint to characterize the extent of PCE in subsurface soils. PCE concentrations in soil greater than 480  $\mu\text{g/kg}$  were detected in the DPT borings at cone penetrometer testing (CPT) locations CPT-88-1, CPT-88-3, and CPT-88-22, and in coreholes CC-88-2 and CC-88-3. CPT-88-1 and CPT-88-22 were located along a former drain line upstream of Sump 66. CC-88-2 was located within the former Sump 66 area. CPT-88-3 and CC-88-3 were located in the north excavation area, which is in the eastern portion of the Building 88 footprint. Tables 3-2 and 4-2 provided the specific PCE concentrations in soil at depth by location. Cross sections through the Building 88 footprint (Figure 9-2) showing PCE concentrations in soil are presented on Plate 9-1. PCE isoconcentration contours of soil at



various depth intervals are presented on Plates 9-2 and 9-3. PCE isoconcentrations of soil have been developed in order to evaluate environmental response actions.

The maximum PCE concentration in soil samples collected beneath the Building 88 footprint were located in the area of Sump 66. PCE was detected at a concentration of 6,700 µg/kg in a clayey silt soil sample from the DPT boring at location CPT-88-22 at 12 to 13 feet below ground surface (bgs) (see Plate 9-2). Lithology of CPT logs are not based on the Unified Soil Classification System (USCS); thus, a USCS lithologic symbol is not applied in the following discussion. The DPT boring at location CPT-88-22 was installed near a former floor drain that discharged to Sump 66. PCE concentrations in soil decreased with depth at location CPT-88-22 and were less than 480 µg/kg at a depth of 20 feet bgs in a clayey silt. PCE concentrations remained less than 480 µg/kg to the total depth investigated.

Eight feet to the north of location CPT-88-22, along the same drain line and adjacent to Sump 66, soil samples from the DPT boring at location CPT-88-1 had similar PCE soil concentrations at shallow depths. PCE concentrations in soil samples from the DPT boring at location CPT-88-1 ranged from 6,400 µg/kg at 12.5 to 13.5 feet bgs in a silty clay to 650 µg/kg at 30.5 to 31.5 feet bgs in a clayey silt. However, PCE concentrations in soil samples from the DPT at location CPT-88-1 were below 480 µg/kg from 18.5 to 19.5 feet bgs in a sandy silt and 24.5 to 25.5 feet bgs in sand. The PCE concentration in the soil sample collected from the DPT boring from location CPT-88-1 was less than 480 µg/kg at the subsequent sampling depth of 38.5 to 39.5 feet bgs in a silt and remained less than 480 µg/kg to the total depth investigated.

Eight feet further to the north of location CPT-88-1, near Sump 66, PCE soil concentrations of 2,300 µg/kg, 1,300 µg/kg, and 2,000 µg/kg were detected in soil samples from boring CC-88-2 from 18.5 to 19 feet bgs in a silty sand (SM), 25 to 25.5 feet bgs in a silt (ML), and 26 to 26.5 feet bgs in sand to silty sand (SW-SM), respectively. Lithologic symbols are based on the USCS, as described in *Visual Classification of Soil* (Bureau of Reclamation, 1986) and the *2000 Standard Practice for Description and Identification of Soils (Visual-Manual Procedures)* (American Society for Testing and Materials D2488-00). The PCE concentration in soil in boring CC-88-2 was less than 480 µg/kg at the subsequent sampling depth of 41 to 41.5 feet bgs in a silt (ML) and remained less than 480 µg/kg to total depth.

The combined results of soil samples from the DPT boring at location CPT-88-1 and the core boring CC-88-2 indicate the presence of a potential continuing source area that may require further attention from approximately 10 to 35 feet bgs in the area of Sump 66 (see Plates 9-1 through 9-3). The highest PCE concentrations were detected in fine-grained soil (silt and clay) located at shallow depths closest to the former sources (drain line and Sump 66). It appears that PCE distribution is related more to proximity to the former source than to soil type in the Sump

66 area. However, since only fine-grained soil was present at 12 to 13 feet bgs, a comparison of PCE distribution to soil type is not possible.

PCE soil contamination at concentrations greater than 480 µg/kg was also detected in the northern remedial excavation area. The previous soil removal did not extend below the water table, which was approximately 8 feet bgs at that time. PCE soil concentrations were detected above 480 µg/kg in post-excavation samples, as described in Section 1.2.5. CC-88-3 and a DPT boring at CPT-88-3 were located in the northern remedial excavation area (see Figure 9-2). PCE concentrations in soil of 5,200 µg/kg at 14 to 14.5 feet bgs in a sand (SP) and 3,500 µg/kg at 12 to 13 feet bgs in clay were detected at CC-88-3 and from the DPT boring at location CPT-88-3, respectively. PCE contamination in soil at concentrations greater than 480 µg/kg extended to a maximum depth of 19.5 feet bgs in a sand (SP) soil sample in boring CC-88-3 and 13 feet bgs in a clay soil sample from the DPT at location CPT-88-3. The combined results of soil samples from the DPT boring at locations CPT-88-3 and CC-88-3 indicate the presence of a potential continuing source area that may require further attention from approximately 8 to 20 feet bgs in the northern excavation area (see Plates 9-1 and 9-2). PCE appears to be present at high concentrations in both fine-grained and coarse-grained soil at shallow depths in the northern excavation area.

Soil with PCE concentrations greater than 480 µg/kg extends to a maximum depth of approximately 35 feet bgs in the Sump 66 vicinity. It ranges from 20 to 32 feet bgs along a former floor drain line upstream of Sump 66 and approximately 20 feet bgs underlying the northern excavation area. The estimated volume of soil with PCE concentrations greater than 480 µg/kg within the Building 88 area is 775 cubic yards (cu yd). The estimated mass of PCE in the soil concentrations greater than 480 µg/kg within the Building 88 area is 2.5 pounds. PCE mass in soil was estimated by first calculating soil volume for each of the areas shown on Plates 9-2 and 9-3. The volume was multiplied by 0.7 to account for void space. The soil volume was then multiplied by the geometric mean of the PCE concentration contour intervals (the highest PCE concentration was used for the upper contour at the maximum interval).

Shallow PCE contamination in soil in the Building 88 area does not extend laterally much farther than the building footprint. CPT-88-5 and CPT-88-14 were located to the north of the Building 88 area, north of Wescoat Road (see Figure 9-2). PCE was not detected above the laboratory reporting limit of 6 µg/kg in shallow soil samples collected at 10.5 to 11.5 feet bgs and 23.5 to 24.5 feet bgs from the DPT boring at location CPT-88-5 or 10 to 11 feet bgs and 26 to 27 feet bgs from the DPT boring at location CPT-88-14.

The former dry cleaning facility had numerous wastewater collection trenches, floor drains, subsurface piping and sumps. Whether through cracks in the wastewater collection trenches, floor drains, subsurface piping and/or sump, PCE was released into the subsurface. The results of

previous investigations and removal actions (see Section 1.0), the soil gas survey (see Section 2.0), and the findings from the soils analysis suggest releases occurred in two areas: in the area of Sump 66 and in the eastern section of the Building 88 footprint. The majority of PCE soil contamination greater than the residential soils PRG of 480 µg/kg is relatively shallow, extending to approximately 20 feet bgs over most of the impacted area, and to 35 feet bgs near Sump 66. Where present near the source areas, coarse-grained soil contained higher PCE concentrations than adjacent finer grained soil. However, the overwhelming majority of the soil from 10 to 35 feet bgs are fine-grained (sils and clays). Thus, the majority of the PCE concentrations greater than 480 µg/kg is found in finer-grained soil.

### 9.1.2 Traffic Island Area

Elevated PCE soil gas concentrations were detected along the sewer alignment in the downstream direction (to the east and north) from the Building 88 footprint (see Section 2.3). Seven CPT/DPT boring locations were placed adjacent to the sewer alignment to determine if PCE contamination was present, and if present, to define the extent of PCE in the subsurface. CPT/DPT borings were advanced at location CPT-88-19 adjacent to the location of soil gas probe SG-88-4, where the highest soil gas PCE concentration had been detected (11,000 ppbv). CPT/DPT borings were advanced at location CPT-88-13 adjacent to the location of soil gas probe SG-88-42, where the second highest soil gas PCE concentration had been detected (5,900 ppbv). PCE concentrations in soil greater than 480 µg/kg were detected from the DPT borings at locations CPT-88-13, CPT-88-19, and CPT-88-23 (along the northern portion of Cummins Avenue). Geologic cross sections through the traffic island area (Figure 9-3) are presented on Plate 9-4. PCE isoconcentration contours at various depth intervals are presented on Plates 9-5 and 9-6.

The maximum PCE concentration in soil samples collected along the northern portion of Cummins Avenue were located within the traffic island area at the corners of Cummins Avenue, Wescoat Road, and Cody Road. PCE was detected in all soil samples collected from the DPT boring at location CPT-88-13 and the subsequent deeper over-drilled boring for monitoring well W88-1. PCE concentrations ranged from 580 µg/kg in sand at 29.5 to 30.5 feet bgs, to 10,000 µg/kg in clay (CL) at 70 to 70.5 feet bgs. PCE was detected at 8,700 µg/kg in sand with silt and gravel (SW- SM) from 73 to 73.5 feet bgs from the monitoring well boring for W88-1. However, the PCE concentration of 8,700 µg/kg from 73 to 73.5 feet bgs and possibly the 10,000 µg/kg from 70 to 70.5 feet bgs are considered to be caused by drag-down during sampling, since the soils concentrations are not consistent with groundwater sample concentrations from the same depth interval (see Section 6.3). PCE was detected at 610 µg/kg from 48 to 49 feet bgs in a clayey silt sample from the DPT boring located at CPT-88-23. PCE concentrations in soil from the DPT boring at location CPT-88-23 were less than 480 µg/kg in soil samples collected above and below the 48- to 49-foot bgs sample. PCE was detected at 540 µg/kg in a sandy silt soil

sample from 6 to 7 feet bgs, collected from the DPT boring located at CPT-88-19. PCE concentrations in soil from the DPT boring at location CPT-88-19 decreased with depth and was less than 480 µg/kg at a depth of 11.5 feet bgs in a silty clay. PCE concentrations remained less than 480 µg/kg to total depth.

PCE soil contamination in the traffic island area appears to be centered on the sewer, which was the discharge for wastewater from the Building 88's Sump 66. It appears that a leak occurred at or downstream from a 90° bend at the intersections of Wescoat Road, Cummins Avenue, and Cody Road. PCE contamination at the traffic island appears to have migrated vertically downward and laterally along the sewer trench to the north. PCE was not detected above laboratory reporting limits in soil gas samples from three consecutive soil gas probes, SG-88-44, SG-88-6, and SG-88-7, located along the sewer alignment to the south of the traffic island (see Section 2.3). The volume of PCE-contaminated soils at concentrations greater than 480 µg/kg in the traffic island area is calculated to be 12,400 cu yd. The estimated mass of PCE in the soil concentrations greater than 480 µg/kg in the traffic island area is calculated to be 32 pounds. PCE mass in soil was estimated by first calculating soil volume for each of the areas shown on Plates 9-5 and 9-6. The volume was multiplied by 0.7 to account for void space. The soil volume was then multiplied by the geometric mean of the PCE concentration contour intervals (the highest PCE concentration was used for the upper contour at the maximum interval).

## 9.2 CONTAMINANT FATE AND TRANSPORT (GROUNDWATER)

Depth to groundwater in the area of the Building 88 is currently about 5 feet. However, the depth to groundwater was likely less in past decades. As regional growth and development increased in the early part of the 1900s, so did extraction of groundwater. Over-production of groundwater lead to groundwater level declines, surface subsidence, and intrusion of saltwater into aquifers (Santa Clara Valley Water District, 1980). The maximum extent of these impacts may have occurred in the 1960s (Santa Clara Valley Water District, 1980). It is possible that much, if not all of the A aquifer may have been dewatered (dry) until the late 1960s. Production of groundwater decreased in the mid to late 1960s, as groundwater was replaced with water imported from the Hetch-Hetchy reservoir (Santa Clara Valley Water District, 1980). PCE-contaminated wastewater that leaked from Building 88 or the discharge sewer line in the traffic island area prior to the early 1970s, likely would have migrated through an unsaturated soil column through the A aquifer. This information is important, since contaminant fate and transport in unsaturated soils differs from that of a saturated aquifer. With the decrease in groundwater production from the lower aquifers in the mid to late 1960s, the water table began to rise.

PCE was detected in groundwater HydroPunch® samples at concentrations ranging from below the laboratory reporting limit of 0.5 µg/L to 15,000 µg/L (see Table 4-1). The solubility of PCE in water is listed as 150 milligrams per liter (mg/L) at 25° Centigrade (Verschuieren, 1983).

Concentrations of chlorinated solvents in groundwater at greater than 1 percent of their solubility limit are assumed to suggest the presence of a dense non-aqueous phase liquid (DNAPL) (EPA, 2004c). However, a separate non-aqueous phase is not typically detected in field samples at the 1 percent level. A separate non-aqueous phase may be detected in field samples as the concentration increases to greater than 10 percent of the solubility limit. For PCE, 1 percent of the solubility limit is a concentration of 1,500 µg/L in groundwater.

HydroPunch® groundwater samples were collected over a 2-foot or 3-foot interval at the Building 88 and traffic island area, and at select downgradient locations. Groundwater monitoring well samples were collected from monitoring well screens that are 2 to 15 feet long. HydroPunch® groundwater sample results from various locations were compared to sample result from groundwater monitoring wells as described below:

- HydroPunch® groundwater sample from CPT-88-5 compared to upper A aquifer monitoring well W9-46 and lower A aquifer monitoring well W9SC-15
- HydroPunch® groundwater sample from CPT-88-6 compared to upper A aquifer monitoring well WIC-1 and lower A aquifer monitoring well W9-20
- HydroPunch® groundwater sample from CPT-88-7 compared to upper A aquifer monitoring well W9-23
- HydroPunch® groundwater sample from CPT-88-8 compared to lower A aquifer monitoring well W9SC-3
- HydroPunch® groundwater sample from CPT-88-11 compared to upper A aquifer monitoring well W29-3

Monitoring well W9-46 is an upper A aquifer monitoring well, with a 10-foot-long screen completed over the interval of 17 to 27 feet bgs. The CPT lithologic log at location CPT-88-5 (about 40 feet to the west of W9-46) shows sandy soils from about 21 to 25 feet bgs (see Appendix E). The PCE concentration in a groundwater sample from W9-46, collected on April 27, 2005, was estimated at 150 µg/L. The PCE concentration in the HydroPunch® sample from location CPT-88-5 at a depth of 23 to 25 feet bgs was 0.55 µg/L.

Monitoring well W9SC-15 is a lower A aquifer monitoring well, with a 3-foot-long screen completed over the interval of 30 to 33 feet bgs. The CPT lithologic log at location CPT-88-5 (about 10 feet to the west of W9SC-15) shows clayey silts from about 30 to 37 feet bgs (see Appendix E). The PCE concentration in a groundwater sample from W9SC-15, collected on April 27, 2005, was estimated at 170 µg/L. Sufficient volume could not be collected for PCE sample analysis in the HydroPunch® sample from the boring at location CPT-88-5 between 30 to 33 feet bgs due to low apparent hydraulic conductivity.

Monitoring well WIC-1 is an upper A aquifer monitoring well, with a 5-foot-long screen completed over the interval of 18.7 to 23.7 feet bgs. The CPT lithologic log at location CPT-88-6 (about 35 feet to the north of WIC-1) shows sandy soils from about 20 to 23 feet bgs (see

Appendix E). The PCE concentration in a groundwater sample from WIC-1, collected on April 28, 2005, was 12 µg/L. The PCE concentration in the HydroPunch® sample from a boring at location CPT-88-6 at a depth of 20 to 23 feet bgs was 17 µg/L.

Monitoring well W9-20 is a lower A aquifer monitoring well, with a 15-foot-long screen completed over the interval of 30 to 45 feet bgs. The CPT lithologic log at location CPT-88-6 (about 50 feet to the southwest of W9-20) shows sandy soils from about 28 to 31 feet bgs and from 42 to 46 feet bgs (see Appendix E). The PCE concentration in a groundwater sample from W9-20, collected on April 28, 2005, was estimated at 530 µg/L. The PCE concentration in the HydroPunch® sample from a boring at location CPT-88-6 at a depth of 29 to 31 feet bgs was 27 µg/L and at a depth of 42 to 44 feet bgs was estimated at 120 µg/L.

Monitoring well W9-23 is an upper A aquifer monitoring well, with a 10-foot-long screen completed over the interval of 18 to 28 feet bgs. The CPT lithologic log at location CPT-88-7 (about 80 feet to the southeast of W9-23) shows sandy soils from about 23 to 25 feet bgs (see Appendix E). The PCE concentration in a groundwater sample from W9-23, collected on April 27, 2005, was 3.6 µg/L. The PCE concentration in the HydroPunch® sample from a boring at location CPT-88-7 at a depth of 23 to 25 feet bgs was 7.3 µg/L.

Monitoring well W9SC-3 is a lower A aquifer monitoring well, with a 3-foot-long screen completed over the interval of 31.5 to 34.5 feet bgs. The CPT lithologic log at location CPT-88-8 (about 45 feet to the southeast of W9SC-3) shows sandy silts from about 29 to 31 and from 32 to 34 feet bgs (see Appendix E). The PCE concentration in a groundwater sample from W9SC-3, collected on April 27, 2005, was 67 µg/L. The PCE concentration in the HydroPunch® sample from a boring at location CPT-88-8 at a depth of 32 to 34 feet bgs was 58 µg/L.

Monitoring well W29-3 is an upper A aquifer monitoring well, with a 10-foot-long screen completed over the interval of 10.5 to 20.5 feet bgs. The CPT lithologic log at location CPT-88-11 (about 15 feet to the west of W29-3) shows clayey silts from about 11 to 12 feet bgs, 16 to 17 feet bgs, and 18 to 21 feet bgs (see Appendix E). The PCE concentration in a groundwater sample from W29-3, collected on April 28, 2005, was 6.5 µg/L. The PCE concentration in the HydroPunch® sample from a boring at location CPT-88-11 at a depth of 10 to 13 feet bgs was 0.5 µg/L and from 18 to 20 feet bgs 7.1 µg/L.

In general, there appears to be a reasonable comparison of PCE concentrations between groundwater samples collected from groundwater monitoring wells and groundwater samples collected from a HydroPunch®. The groundwater sample data from two of the longer screened monitoring wells, W9-46 and W9-20, were not comparable with the HydroPunch® sample data. There is some indication that the longer the monitoring well screen, the less there was a correlation between the monitoring well and HydroPunch® groundwater samples, regardless of the hydrostratigraphy.

### 9.2.1 Building 88 Area

The distribution of PCE concentrations in groundwater with respect to depth bgs at the former Building 88 area is shown on Plates 9-7 and 9-8. In addition, the distribution of PCE concentrations in groundwater related to individual lithologic layers are shown in the geologic cross sections D-D' and E-E' (see Plate 9-1). The two cross sections are oriented approximately 20° to 30° from the northerly regional groundwater flow direction (see Figure 9-2). PCE concentrations in groundwater samples collected beneath the Building 88 area range from less than the laboratory reporting limit of 0.5 µg/L to a high estimated value of 2,100 µg/L at 56 to 59 feet bgs from the DPT boring at location CPT-88-15. In general, in the southern and western portion of the Building 88 footprint, PCE concentrations are less than 20 µg/L in groundwater samples collected from within permeable layers in the upper 30 feet bgs (upper portion of the A aquifer), and less than the EPA Region 9 drinking water Maximum Contaminant Level (MCL) of 5 µg/L in samples collected from below 30 feet bgs (lower portion of the A aquifer). This is consistent with the apparent de minimus soils contamination found in the southern and western portion of the Building 88 footprint (see Section 9.1.1).

In the eastern portion of the Building 88 footprint and in the area of Sump 66, PCE concentrations in groundwater samples are highest in the upper 15 feet (to a maximum of 1,100 µg/L at 12 to 14 feet bgs from the DPT boring at location CPT-88-1). The relative magnitude and location of the groundwater contamination to a depth of 20 feet bgs is consistent with the shallow soils contamination found in the eastern portion of Building 88 and in the area of Sump 66 (see Plate 9-2). An apparent increase in both PCE concentration and volume of impacted groundwater at 21 to 30 feet bgs may be due to lithology, as there are more permeable soils found at this depth interval.

The PCE contamination in the groundwater sample from monitoring well W9-46 (estimated at 150 µg/L, screened from 17 to 27 feet bgs) shown within the 16- to 20-foot bgs depth interval in Plate 9-7 does not appear to be related to Sump 66, due to the low PCE concentration in the groundwater sample from the adjacent monitoring well W9SC-14 (estimated at 5 µg/L, screened from 17 to 20 feet bgs). However, the PCE concentration in the groundwater sample from monitoring well W9-46 is likely due to the longer screen interval and the higher PCE concentrations at the 21- to 30-foot bgs depth interval (see Plate 9-7) originating from the Sump 66 area.

PCE concentrations in groundwater increase with depth to the north of the Building 88 area at depths greater than 30 feet bgs (lower portion of the A aquifer) to a maximum estimated value of 2,100 µg/L in a groundwater sample collected from 56 to 59 feet bgs from the DPT boring at location CPT-88-15 (see Plate 9-8). It appears that PCE-contaminated groundwater (possibly as DNAPL, since the concentration of PCE in the groundwater sample from the DPT boring at location CPT-88-15 at 56 to 59 feet bgs is greater than 1 percent of the solubility limit of PCE [see Section 9.2]) moved vertically downward to about the 20-foot bgs depth underlying the Building 88 footprint. At the 21- to 30-foot depth interval, the PCE-contaminated groundwater

moved advectively and/or down-dip to the north, if in DNAPL phase. PCE contamination then found a vertical pathway and moved to the investigated depth of 60 feet bgs. PCE-contaminated groundwater in the lower A aquifer appears to be moving generally downgradient by advection in the more permeable units. The apparent northwestern localized flow direction may be caused by a combination of lithology (channelization) and pumping of the lower A aquifer. Due to the nature and extent of PCE contamination in groundwater, the amount of PCE is assessed for the overall upper and lower portions of the A aquifer and not for the individual source areas described in Section 9.2.3.

In general, it appears that PCE concentrations in the fine-grained soil samples collected at depths above 20 to 35 bgs are higher than groundwater concentrations. The soil-water partitioning coefficient for PCE is listed as 155 milliliters per gram by the EPA (1996), which is not a high value (PCE prefers to stay in the liquid phase). However, the total organic carbon (TOC) for much of the fine-grained soils above 20 to 35 feet bgs is relatively high, allowing for greater sorption. The coarser-grained soil contained much less TOC than the fine-grained soil, and thus, appeared to have sorbed lower concentrations of PCE. Soil samples from the coarser-grained layers in the upper 35 feet bgs generally had lower PCE concentrations in soils than the groundwater samples collected from those same layers. Below depths of about 35 feet bgs, the soil samples contain less TOC, and the PCE concentrations in soil samples were less than the groundwater sample concentrations. This interpretation is consistent with the findings presented in Section 9.1.1.

In order to evaluate environmental response actions, it is necessary to determine if subsurface PCE concentrations are primarily found in the water (sorbing to the soils), bound to the soils (desorbing to the water), or in equilibrium between water and soils. This evaluation is made by comparing the measured soil PCE concentration, the theoretical sorbed PCE concentration, and the PCE groundwater concentration. The theoretical sorbed concentrations of PCE to soil are based on the PCE groundwater concentration and the TOC concentration, calculated using the following equations:

$$\text{Sorbed PCE soil concentration} = K_d \times C_{gw}$$

Where,

$C_{gw}$  = groundwater PCE concentration

$K_d$  = distribution coefficient =  $K_{oc} \times f_{oc}$

Where,

$K_{oc}$  = organic carbon-water partitioning coefficient

$f_{oc}$  = fraction organic carbon

The analysis uses averaged values over the upper or lower portion of the A aquifer at the following Building 88 locations. The results of the analysis are provided in Table 9-1.

- CPT-88-1      Building 88, adjacent to Sump 66
- CPT-88-2      Building 88, within Sump 91



- CPT-88-3 Building 88, northern excavation area
- CPT-88-15 North of Building 88

PCE-contaminated soils are primarily desorbing to groundwater in the upper portion of the A aquifer in the Sump 66 and the northern excavation areas. PCE concentrations are generally in equilibrium between the soil and groundwater in the upper portion of the A aquifer in the area of Sump 91 and to the north of Sump 66.

Dissolved PCE-contaminated groundwater is sorbing to the soils in the lower portion of the A aquifer in the Sump 66 and to the north of Sump 66 areas. PCE concentrations are generally in equilibrium between the soil and groundwater in the lower portion of the A aquifer in the Sump 91 and to the northern excavation.

### 9.2.2 Traffic Island Area

The distribution of PCE concentrations in groundwater with respect to depth bgs at the traffic island area is shown on Plates 9-9 and 9-10. In addition, the distribution of PCE concentrations in groundwater related to individual lithologic layers are shown in the geologic cross sections F-F' and G-G' (see Plate 9-4). Cross section F-F' is oriented north-south, looking toward the east, generally along the regional groundwater flow direction. Cross section G-G' is oriented west-east, looking toward the north, generally orthogonal to the regional groundwater flow direction. Concentrations of PCE in groundwater samples collected from beneath the traffic island area ranged from 2,000 µg/L at 57 to 60 feet bgs to 15,000 µg/L at 17 to 19 feet bgs from the DPT boring at location CPT-88-13. The PCE concentration in a groundwater sample collected in December 2005, from monitoring well W88-1, screened at a depth of 72 to 82 feet bgs directly beneath the DPT boring at location CPT-88-13, was 6 µg/L (see Section 6.3). This concentration is not consistent with the PCE soils concentration of 8,700 µg/kg from the sample collected in the screen interval at 73 to 73.5 feet bgs. The relatively high PCE concentrations detected in this soil sample is considered to have been caused by drag-down during sampling (See Sections 6.3 and 9.1.2).

PCE concentrations in groundwater samples collected south (hydraulically upgradient) of the traffic island (from DPT borings at locations CPT-88-16 and CPT-88-17, and from monitoring well WNX-2) were less than the PCE MCL of 5 µg/L. PCE concentrations in groundwater appear to decrease to the north, with concentrations of PCE in groundwater samples collected from the DPT boring at location CPT-88-19 (the closest downgradient location, about 200 feet to the north) detected above the MCL at 6 to 9 feet bgs (estimated at 830 µg/L), at 27 to 30 feet bgs (9.5 µg/L), and at 47 to 50 feet bgs (estimated at 130 µg/L).

The apparent elongated shape of the groundwater contamination to a depth of 15 feet bgs is likely controlled by the utility corridor underlying Cummins Avenue and Wescoat Road (see Plate 9-9). The apparent increase in PCE concentration and decrease in apparent volume of impacted groundwater at the 16- to 20-foot bgs interval may be due to encountering native fine-

grained soils restricting the movement of PCE contamination. Below a depth of 30 feet bgs, PCE contaminant migration appears to be controlled by the more permeable layers of soil. It appears that PCE contamination moved vertically down to a depth of about 70 feet bgs below the traffic island and did not fully penetrate a clay layer at this depth. Based on the PCE concentrations measured in this investigation, the vertical movement of contamination in the traffic island was likely a combination of DNAPL and dissolved phase. DNAPL is likely still present and can be detected in field samples in the depth interval of 6 to 20 feet bgs in the area of location CPT-88-13, based on PCE concentrations detected at or near 10 percent of its solubility limit (see Section 9.2). DNAPL was likely a driving force for the vertical migration of PCE to about 70 feet bgs in the area of CPT-88-13, as reported concentrations are greater than 1 percent of the solubility limit to that depth.

The assessment of potential environmental response actions (determining if subsurface PCE concentrations are primarily found in the water [sorbing to the soils], bound to the soils [desorbing to the water], or in equilibrium between water and soils) was evaluated as described in Section 9.2.1. The analysis uses averaged values over the upper or lower portion of the A aquifer at the following traffic island source area locations. The results of the analysis are provided in Table 9-1.

- CPT-88-13      Traffic island
- CPT-88-23      North of traffic island

Dissolved PCE-contaminated groundwater is sorbing to the soils in the upper portion of the A aquifer to the north of the traffic island. Dissolved PCE-contaminated groundwater appears to be sorbing to the soils in the upper portion of the A aquifer in the traffic island however, the average PCE soils concentration is about a factor of two greater than the calculated sorbed concentration due to low TOC concentrations. This apparent condition may be caused by residual high groundwater PCE concentrations in the fine-grained soil during laboratory analysis and/or the presence of DNAPL.

Dissolved PCE-contaminated groundwater is sorbing to the soils in the lower portion of the A aquifer to the north of the traffic island. Dissolved PCE-contaminated groundwater appears to be sorbing to the soils in the lower portion of the A aquifer in the traffic island however, the average PCE soils concentration is about an order of magnitude greater than the calculated sorbed concentration due to low TOC concentrations. This apparent condition may be caused by residual high groundwater PCE concentrations in the fine-grained soil during laboratory analysis and/or the presence of DNAPL.

### 9.2.3 Downgradient PCE Plume

Compositing the subsurface utility information, the coarse-grained soil distributions, the DPT groundwater sample data, and the groundwater monitoring well data provides a different depiction of the downgradient PCE plumes (upper A aquifer [Figure 9-4] and lower A aquifer

[Figure 9-5] plumes) than interpreted using only the December 2004 groundwater monitoring data (see Section 1.2.7). The source area for both the upper and lower A aquifer PCE plumes appears to be related to the northern and eastern portion of the Building 88 area, the Sump 66 discharge sewer along Wescoat Road, and at the traffic island along Cummins Avenue. There are two PCE plume lobes within the upper portion of the A aquifer. The lobe to the east is a narrow linear feature along Cummins Avenue. The eastern lobe, found in the shallowest portions of the upper A aquifer, is interpreted to be controlled by the backfill of the utilities along Cummins Avenue. The eastern PCE lobe is mostly defined by the DPT HydroPunch® data. It is possible that there is some dispersion that would cause dissolved PCE to migrate beneath Hangar 1. However, based on the limited dispersion on the west side of Cummins Avenue, PCE concentrations were not projected beneath Hangar 1 in the upper A aquifer. The eastern lobe is about 1,000 feet long and generally less than 50 feet wide. The western boundary of the eastern lobe is explicitly defined by groundwater monitoring wells W9-45 and W9SC-1, and implicitly defined by the physical environment (subsurface utilities along Cummins Avenue). The eastern boundary of the eastern lobe is explicitly defined by the DPT samples from location CPT-88-18 and groundwater monitoring well WWR-1 and is implicitly defined by the physical environment. The concentrations of PCE in the eastern lobe of the upper A aquifer decrease to the north, away from the traffic island source area. The highest concentration of PCE within the eastern lobe, downgradient of the traffic island source area, was reported at an estimated concentration of 830 µg/L in a groundwater sample from the DPT boring at location CPT-88-19 collected at a depth of 6 to 9 feet bgs. CPT-88-19 is located approximately 200 feet north of the traffic island.

The western PCE lobe within the upper portion of the A aquifer does not differ from the depiction developed using solely groundwater monitoring well data (see Section 1.2.7). The PCE groundwater plume, as detected in the upper portion of the A aquifer groundwater monitoring wells, is approximately 2,000 feet long and from 150 to 250 feet wide. The plume has an elongated shape in a north-south direction, is interpreted to be due to the channelization characteristics of coarse-grained soil (see Section 8.3), and appears to be influenced by extraction well pumping from the upper A aquifer. Groundwater samples from monitoring wells W9-10, 14D12A, 14B27A, and 14D30A are used in delineating the northern (downgradient) edge of the western lobe. The southern edge of the western lobe is not delineated and may have a contribution from upgradient sources. The eastern edge of the western lobe is delineated by groundwater samples from monitoring wells W9SC-7, W9-23, and UST85-MW02. The western edge of the PCE plume is delineated by groundwater samples from monitoring wells W9-6 and W29-4. The highest concentration of PCE within the western lobe, downgradient from the former Building 88 source area, was reported at an estimated concentration of 150 µg/L in a groundwater sample from monitoring well W9-46 collected in April 2005, which is approximately 100 feet northeast of the former Building 88.

The total amount of PCE in the upper portion of the A aquifer, including the eastern and western lobes, is calculated to be 48 pounds. PCE mass in groundwater was calculated by multiplying the surface area for the revised upper A aquifer PCE plume on Figure 9-5 by the estimated aquifer thickness of 23 feet. The resulting volume was multiplied by 0.3 to account for the solid fraction. The water volume was then multiplied by the geometric mean of the PCE concentration contour intervals (the highest PCE concentration was used for the upper contour at the maximum interval).

The PCE plume within the lower portion of the A aquifer is wider than depicted using solely groundwater data from monitoring wells. Dissolved PCE in the lower A aquifer along Cummins Avenue (downgradient of the traffic island) appears to be controlled by preferred flow paths (sand channels) and the groundwater flow direction. It is possible that there is some dispersion that would cause dissolved PCE to migrate beneath Hangar 1. However, since extraction well EA2-3 only contains low PCE concentrations, it is not likely that there is significant dispersion beneath Hangar 1. The PCE groundwater plume, as detected in lower A aquifer groundwater monitoring wells, is approximately 1,600 feet long and varies from 250 to 500 feet wide. The plume is located immediately west of Hangar 1 (Figure 9-6). The northern edge of the PCE plume appears to be lobate, as suggested using the DPT groundwater sample at location CPT-88-11 collected at a depth of 31 to 33 feet bgs and the 2005 groundwater sample collected from the WATS extraction well EA2-3 (29 µg/L of PCE). However, it is possible that the groundwater sample from the DPT boring at location CPT-88-11 collected at the depth of 31 to 33 feet is representative of the upper portion of the A aquifer. The northern edge of the PCE plume is delineated by groundwater samples from monitoring wells WU4-15, W29-7, and W9-22. The southern edge of the PCE plume is well-delineated in the area of the traffic island (groundwater samples from DPT locations CPT-88-16, CPT-88-17, and CPT-88-18), but not well-delineated in Building 88 (due to elevated detection levels of groundwater samples from monitoring wells to the south of the PCE plume). The southern edge of the PCE plume in the lower A aquifer appears to be in Building 88 area. The eastern edge of the PCE plume is partially delineated by groundwater samples from monitoring wells W9-21 and W9-42. The western boundary of the PCE plume is partially delineated by groundwater samples from monitoring wells W9-33 and W9-14. The highest concentration of PCE within the lower portion of the A aquifer, downgradient of the Building 88 or traffic island areas, was in a groundwater sample from monitoring well W9-20 at an estimated concentration of 530 µg/L collected in April 2005 (assuming that location CPT-88-23 is within the traffic island source area). The amount of PCE in the lower portion of the A aquifer is calculated to be 70 pounds. PCE mass in groundwater was calculated by multiplying the surface area for the revised lower A aquifer PCE plume on Figure 9-6 by the estimated aquifer thickness of 30 feet. The resulting volume was multiplied by 0.3 to account for the solid fraction. The water volume was then multiplied by the geometric mean of the PCE concentration contour intervals (the highest PCE concentration was used for the upper contour at the maximum interval).

Horizontal migration of PCE-contaminated groundwater from Building 88 and traffic island areas appear to be limited in the upper 30 feet by the lack of continuous sand channels (see Section 8.3). Although shallow (less than 30 feet bgs) PCE concentrations are high within permeable lenses in the Building 88 and traffic island areas, the downgradient concentrations in the upper portion of the A aquifer are significantly lower (see Figure 9-7 and Plate 9-9). It is likely that the lower PCE concentrations in the upper A aquifer downgradient of the source areas are a function of sorption, dispersion (macro-scale caused by the lack of continuity of sand channels, and micro-scale caused by advective groundwater flow), and dilution.

Horizontal migration of PCE-contaminated groundwater from the Building 88 and the traffic island areas appears to be prevalent below 30 feet due to the north-south continuity of sandy soils in the 40- to 46-foot interval and 45- to 52-foot interval of the lower A aquifer (see Section 8.3) influenced by extraction well pumping in the lower A aquifer. Although PCE concentrations at depths greater than about 35 feet bgs are relatively high within lenses in the Building 88 and traffic island areas, the downgradient PCE concentrations in the lower portion of the A aquifer are significantly lower (see Figure 9-8 and Plate 9-10). It is likely that the lower PCE concentrations in the lower A aquifer downgradient of the source areas are a function of sorption, dispersion, and dilution.

Groundwater samples collected from four B2 aquifer zone monitoring wells (51B2 and W9-11 in April 2005, and W88-1 and W88-2 in August 2005) contained PCE at concentrations at 69 µg/L, an estimated 0.17 µg/L, an estimated 0.31 µg/L, and an estimated 0.17 µg/L, respectively. Groundwater samples collected from three other B2 aquifer zone wells (W9-12 and W9-15 in April 2005, and W88-3 in August 2005) did not contain PCE at concentrations greater than the laboratory reporting limit. A groundwater sample collected from B2 aquifer zone monitoring well W88-1 in December 2005 contained PCE at a concentration of 6 µg/L. Groundwater samples collected from four other B2 aquifer zone wells in December 2005 (W9-12, W9-15, W88-2, and W88-3) did not contain PCE at concentrations greater than the laboratory reporting limit. The August 2005 groundwater sample collected from W88-1 was obtained shortly after well construction. The PCE concentration in the groundwater sample collected from W88-1 in August 2005 appears to be impacted by drag-down during well construction. There appears to be de minimus PCE impacting the B2 aquifer.

## 10.0 TREATABILITY STUDIES

Soil and groundwater samples were collected to conduct chemical oxidation treatment tests and to evaluate the presence of microorganisms. Chemical oxidation tests, biomarker analysis, and substrate screening objectives, methodologies, and results are described in the following sections.

### 10.1 TREATABILITY STUDY OBJECTIVES

Chemical oxidation tests, biomarker analysis, and substrate screening objectives are described in the following sections.

#### 10.1.1 Chemical Oxidation

The chemical oxidation laboratory treatability study objective was to determine the site-specific stoichiometry and amendments required for chemical treatment of site contaminants, and to determine the number of applications (if applicable) and associated reduction in soil and groundwater tetrachloroethene (PCE) contaminant concentrations.

#### 10.1.2 Biomarker Analysis

The biomarker analysis objective was to provide preliminary information relevant to the potential for biodegradation of chlorinated volatile organic compounds (VOCs), through in situ bioremediation. Specific objectives were as follows:

- Provide an assessment of the total viable biomass in the subsurface.
- Assess populations of *Dehalococcoides* spp. and functional genes coding for enzymes involved in reductive dechlorination.
- Generate information regarding microbial community structure and physiological status as baseline data to assess potential future shifts in community dynamics due to treatment or other considerations.

Sampling for biomarkers was limited to two locations, and the data are intended to provide a preliminary, scoping-level assessment of the potential for in situ bioremediation as a remedial approach at this site.

#### 10.1.3 Substrate Screening

The objective of the biotrap installation was to provide initial comparison of several carbon substrates to stimulate the indigenous microbial community, including sodium lactate, molasses, Hydrogen Release Compound (HRC® - a proprietary slow-release lactate compound), a proprietary substrate consisting of plant material and zero-valent iron (EHC™), and Edible Oil

Substrate (a proprietary vegetable oil formulation). Analysis of preliminary substrate screening provided information regarding preferred substrate(s) on a site-specific basis, which can be used in evaluating enhanced in situ bioremediation as a remedial technique.

## **10.2 CHEMICAL OXIDATION**

A chemical oxidation treatability study was performed by In-Situ Oxidative Technologies, Inc. (ISOTEC), West Windsor, New Jersey. Appendix H includes a copy of the laboratory treatability study report. A summary of the treatability study and results are presented below.

Soil and groundwater samples collected from continuous core boring CC-88-3 and the direct push technology (DPT) boring at location CPT-88-3 were used for bench-scale testing of the modified Fenton's process. Portions of groundwater and soil samples were prepared into a slurry (a mixture of composited site soil and groundwater by combining 2 parts soil to 1 part groundwater [by weight]) for use during the study. Experiments were performed independently on the groundwater and on the slurry samples.

The selected modified Fenton's reagent contained an oxidant and a proprietary catalyst. The oxidant used in the reagent was hydrogen peroxide, and the catalyst was ISOTEC's patented Catalyst 4260 (Cat-4260). Cat-4260 is a circum neutral pH organometallic complex with high mobility within the subsurface. An experimental control sample was set up during each experiment described below to document the changes in the target constituents.

### **10.2.1 Methodology – Groundwater**

A groundwater test experiment was performed in four identical 140-milliliter (mL) VOC-tight glass reactors. One of the four reactors served as a control reactor, while the remaining three treatment reactors received low-, medium-, and high-reagent dosages. The predetermined amount of modified Fenton's reagent was injected into each treatment reactor at small, incremental dosages. The treatment reactors received one, two, or three dosages to represent low-, medium-, and high-treatment conditions. Each dosage provided an equivalent hydrogen peroxide concentration of 0.4 percent, and catalyst concentration of 1.4 millimoles (mM) in the groundwater being treated. The multiple dosage approach (incremental approach) was used during the test to increase treatment efficiency, minimize gas formation and the resulting pressure buildup. Approximately 24 hours were maintained between dosages. All reactors (control and treatment) were left undisturbed for a minimum of 24 hours or until all the peroxide was consumed before analytical sample collection. The control sample was set up the same way, remained at, and was subject to the same conditions as the treatment reactor.

### **10.2.2 Methodology – Slurry**

The soil and groundwater slurry (slurry) test experiment was performed in four identical 40-mL VOC-tight glass reactors. One of the four reactors served as the control reactor, while the

remaining three served as treatment reactors. The slurry in each reactor was a 2:1 mixture (12 grams [g] of soil and 6 g of groundwater). A predetermined amount of modified Fenton's reagent was injected into each treatment reactor at incremental dosages. The treatment reactors received one, two, or three dosages to represent low-, medium-, and high-treatment conditions. Each dosage provided an equivalent hydrogen peroxide concentration of 1.9 percent and catalyst concentration of 6.9 mM in the supernatant of the slurry being treated. Upon completion of the experiment, the control and treatment reactors were preserved with methanol and submitted for VOC analysis.

### 10.2.3 Initial Concentrations

Three VOC compounds were detected at a cumulative VOC concentration of 4,380 micrograms per liter ( $\mu\text{g/L}$ ) (pre-treatment groundwater sample) and 7,219 micrograms per kilogram ( $\mu\text{g/kg}$ ) (pre-treatment slurry). Concentrations of individual compounds were as follows:

- Pre-treatment groundwater – PCE at 263  $\mu\text{g/L}$ 
  - trichloroethene (TCE) at 967  $\mu\text{g/L}$
  - cis-1,2-dichloroethene (cis-1,2-DCE) at 3,150  $\mu\text{g/L}$
- Pre-treatment slurry – PCE at 579  $\mu\text{g/kg}$ 
  - TCE at 4,060  $\mu\text{g/kg}$
  - cis-1,2-DCE at 2,580  $\mu\text{g/kg}$

Total organic carbon was present in site soil at a concentration of 930 milligrams per kilograms ( $\text{mg/kg}$ ). It was anticipated that a relatively low reagent dose would be sufficient for effective treatment, as there is little competition for oxidant from the organic materials present in site soils.

Iron and manganese present in site soils could decompose hydrogen peroxide. Iron in soil was detected at 28,700  $\text{mg/kg}$ , and manganese was detected at 330  $\text{mg/kg}$ . Iron in its dissolved phase in groundwater is known to be a catalyst to promote Fenton-type reactions. Dissolved iron was not detected at a reporting limit of 100  $\mu\text{g/L}$ . Manganese was detected at 281  $\mu\text{g/L}$ . Dissolved iron and manganese concentrations are too low to function as effective, naturally occurring catalysts for the Fenton-type reactions.

### 10.2.4 Chemical Oxidation Results – Groundwater

Chemical oxidation (Fenton's reagent) study results for groundwater are summarized in Table 10-1. A 99.7 percent VOC concentration reduction was noted after the lowest treatment condition (one dose). The PCE concentration decreased to below the laboratory reporting level



after two doses. TCE and cis-1,2-DCE concentrations were reduced to below the laboratory reporting level after one treatment dose.

1,1-Dichloroethane (1,1-DCA) persisted after three treatment dosages because of its slower reactivity with free radicals compared to TCE. The absence of double bonds in this compound makes it less vulnerable to free radical attack, resulting in 2-3 orders of magnitude lower hydroxyl radical reactivity. Nonetheless, up to an 87 percent reduction of 1,1-DCA was achieved after three dosages (see Table 10-1). Gradually decreasing 1,1-DCA concentrations with increasing treatment dosages indicates that this compound eventually will be destroyed, although at a slower rate compared to TCE, cis-1,2-DCE, or PCE.

### **10.2.5 Chemical Oxidation Results – Slurry**

Chemical oxidation (Fenton's reagent) study results for the slurry summarized in Table 10-2 indicate a 72 percent VOC concentration reduction after one reagent dose, and an 81 percent VOC concentration reduction after three reagent doses. Concentration reductions for PCE, cis-1,2-DCE, and TCE were 61 percent, 95 percent, and 65 percent, respectively, following three reagent dosages. The persistence of PCE, cis-1,2-DCE, and TCE and a slight rebound of PCE and TCE concentrations were a result of the sample heterogeneity, despite the sample compositing prior to conducting the study. Based on observed decreasing concentration trends, additional doses of reagent would likely treat the PCE, TCE, and cis-1,2-DCE to non-detect levels.

## **10.3 BIOMARKER ANALYSIS**

Biochemistry-based diagnostic assays were used to assess specific microorganisms and groups of microorganisms in soil and water samples. Since certain types of organisms are responsible for specific metabolic reactions, information gained from these assays provides a description of the conditions and processes affecting biodegradation of site contaminants on a site-specific basis.

### **10.3.1 Methodology**

Four samples, two groundwater samples and two soil samples, were collected from DPT borings at locations CPT-88-3 and CPT-88-19 (see Section 4.2) and were sent to Microbial Insights, Inc., for microbial biomarkers analysis.

The following microbial biomarker analyses were performed on each sample:

- Enumeration of *Dehalococcoides* spp., vinyl chloride (VC) reductase, and TCE reductase via quantitative polymerase chain reaction
- Phospholipid fatty acids via gas chromatography-flame ionization detection/mass spectrometry

Groundwater and soil sample PCE, TCE, cis-1,2-DCE, and VC concentrations in the microbial biomarkers samples are presented in Table 10-3.

### 10.3.2 Results

The contaminant data for each sample are consistent – cis-1,2-DCE was generally detected in variable, but relatively large concentrations, and VC was detected at very low concentrations, consistent with the West-Side Aquifers Treatment System (WATS) site data (Tetra Tech FW, Inc. [TtFW], 2005a). The presence of significant amounts of cis-1,2-DCE and trace amounts of VC suggests that reductive dechlorination of PCE and TCE, and to a limited extent cis-1,2-DCE, is occurring. This suggests that the presence of a carbon source and reducing conditions in the range appropriate for reductive dechlorination are present. However, reduction of cis-1,2-DCE appears to be minimal, and thus the characteristic and/or concentrations of naturally occurring organic carbon may be insufficient. It is also possible that appropriate microorganisms/metabolic capabilities required to bring about complete dechlorination to ethene may be limiting. The results of the biomarker analyses are described in this context below.

#### 10.3.2.1 Phospholipid Fatty Acid Analysis

Phospholipid fatty acids analysis provides several levels of information regarding the intact microbial community, including total viable biomass, physiological status, and community structure. Results for total viable biomass and physiological status markers are presented in Table 10-4, and community profiles are included with the laboratory report in Appendix I.

**Enumeration of Viable Biomass:** Total viable biomass is on the order of  $10^4$  to  $10^6$  cells/mL or g. These levels can be considered moderate and do not suggest any major deficiencies with respect to general microbial presence.

**Physiological Status Markers:** Physiological status markers provide indication of the general “health” of representative members of the microbial community with respect to their surroundings. These values represent the ratio of particular phospholipid fatty acids that are produced in response to less favorable conditions (such as nutritional deficiency or toxic stress) to phospholipid fatty acids that are produced in response to more favorable conditions (for example balanced growth). Thus, higher indices represent a greater degree of stress within the community. The results presented here suggest that there may be significant physiological stress within the microbial community. However, physiological stress markers from one sampling event are generally most useful when compared with results from subsequent events, following an induced change in subsurface conditions, such as substrate enhancement.

**Community Profiling:** Community profiles are presented in Appendix I. The profiles reflect various phospholipid fatty acids that are indicative of broad classes of microbes, which are present within the community in varying amounts, dependent upon sub-surface conditions. As

with the physiological status markers, community profile data are most appropriately used to document community evolution based on changing conditions within the subsurface. However, the current samples contained a reasonably diverse community structure, including anaerobic and aerobic bacteria that thrive under a wide variety of conditions. In addition, phospholipid fatty acids indicate the presence of *Firmicutes*, a classification of bacteria that includes several anaerobic fermentors, which produce hydrogen gas that serves as the energy source for reductive dechlorinators. *Firmicutes* are indicative of fermenting organisms (mainly clostridia and bacteriodes-like organisms), which fall within this Phylum, and are thus a reasonable indicator of the process. This appears to represent a reasonably healthy, diverse community.

#### 10.3.2.2 Quantitative Polymerase Chain Reaction

The results from the quantitative polymerase chain reaction analysis are presented in Table 10-5.

***Dehalococcoides* spp:** *Dehalococcoides* spp. deoxyribonucleic acid sequences were detected in all four samples from the DPT at location CPT-88-3 and in one of the samples from the DPT at location CPT-88-19. This demonstrates the presence of *Dehalococcoides* spp. at this site and suggests variation in distribution. With respect to cell concentrations, *Dehalococcoides* spp. was detected in the range of  $10^3$  to  $10^4$  cells/mL in three of the four samples from the DPT samples from location CPT-88-3 (soil and groundwater). Levels in the range of  $10^3$  to  $10^4$  cells/mL are considered relatively high for a site that has not been amended with a carbon substrate. For reference, total bacterial cell counts of  $10^3$  to  $10^4$  cells/mL (based on quantitative polymerase chain reaction analysis) are generally considered low to moderate, but since *Dehalococcoides* spp. comprise a small percentage of the total community, *Dehalococcoides* spp. measured at these concentrations may be considered relatively high. *Dehalococcoides* spp. do not use chlorinated VOCs as energy sources for growth, and thus the data suggest the presence of an organic substrate that is supporting microbial activity at least to some extent, and stimulating reductive dechlorinators.

*Dehalococcoides* spp. are the only organisms known to dechlorinate cis-1,2-DCE to VC and prevent buildup of cis-1,2-DCE. Since many organisms are capable of degrading VC, the presence of *Dehalococcoides* spp. provides evidence for the metabolic capability of the system to bring about complete reductive dechlorination of chlorinated ethenes and suggests a low potential for buildup of cis-1,2-DCE, provided that sufficient substrate is present. Thus, while *Dehalococcoides* spp. is clearly present at this site, high levels of cis-1,2-DCE relative to VC indicate that reductive dechlorination may be substrate limited. It is also possible that the native strain is not efficient in the reductive dechlorination of cis-1,2-DCE. This is supported, to some extent, by the functional gene data presented below.

**Functional Genes:** TCE reductase and BAV1 VC reductase are enzymes that are involved in dechlorination of TCE, cis-1,2-DCE, and VC, respectively. It is important to note that the assays

conducted are specific to deoxyribonucleic acid sequences coding for these enzymes from one strain of *Dehalococcoides* spp. While these sequences are believed to be conserved among other strains, this is not currently well understood. In addition, while *Dehalococcoides* spp. are the only known organisms capable of reductively dechlorinating cis-1,2-DCE, a variety of other organisms can carry out reductive dechlorination of TCE and VC. Thus, care must be exercised in interpreting these results.

In general, if high levels of functional genes are detected in conjunction with *Dehalococcoides* spp., it is a positive indicator that the native *Dehalococcoides* spp. strain contains significant metabolic capabilities for reductive dechlorination. However, if high levels are not detected, it is possible that 1) the metabolic capability is weakly represented in the native *Dehalococcoides* spp. strain(s), or 2) native *Dehalococcoides* spp. strains harbor reductases coded by deoxyribonucleic acid sequences that are not detectable via the current methods, but the strains are capable of carrying out reductive dechlorination of TCE, cis-1,2-DCE and VC. Only TCE reductase was detected, in one sample only. Based on the *Dehalococcoides* spp. and the accompanying chlorinated VOC data, this suggests that the latter of these possibilities may be the case. For example, *Dehalococcoides* spp. with adequate metabolic capabilities is present at the site, but the genes coding for the reductases are not readily detectable. Based on the relatively high occurrence of *Dehalococcoides* spp. and the presence of VC, the efficiency in dechlorination of cis-1,2-DCE would likely increase if substrate enhancement is carried out.

### 10.3.3 Conclusions

The biomarker analysis yielded the following general conclusions:

- Results from the phospholipid fatty acid analysis showed that viable biomass is present in quantities that are generally considered to be moderate and would be supportive of enhanced in situ bioremediation or monitored natural attenuation.
- The microbial community appears to be reasonably diverse.
- *Dehalococcoides* spp. were detected at relatively high concentrations for a non-substrate-amended site, and the distribution appears to vary.
- Functional genes were detected at low frequency.
- Although not definitive, the presence of, along with significant amounts of cis-1,2-DCE and trace amounts of VC, suggests that the native *Dehalococcoides* spp. strain is likely substrate limited, but its efficiency in carrying out reductive dechlorination is not known.

Overall, these data suggest that microbial presence/activity would not be a barrier to enhanced in situ bioremediation. In addition, because *Dehalococcoides* spp. are present at the site in relatively high concentrations, this site appears to be a reasonable candidate for biostimulation through substrate addition. However, based on significant cis-1,2-DCE concentrations and the relatively low concentrations of VC, the conversion of cis-1,2-DCE to VC may be initially slow.

#### **10.4 SUBSTRATE SCREENING**

Reductive dechlorination is an enhanced in situ bioremediation mechanism that can be used to destroy chlorinated VOCs in groundwater. This generally involves delivery of an electron donor (organic substrate) to the subsurface to stimulate growth and metabolism of indigenous bacteria, and/or in limited cases, bacteria that are anthropogenically introduced (bioaugmented). Through microbial respiration, sequential electron donor/acceptor reactions occur within the microbial community, creating a reduced, biologically active zone within the subsurface. In this zone, hydrogen gas is produced through fermentation, which serves as the electron donor for bacteria, which carry out reductive dechlorination.

A wide variety of substrates are available for use in enhanced in situ bioremediation, each having various pros and cons in terms of effectiveness, timeframe to achieve remediation goals, and ease in application (Morse et al., 1998). Initial substrate screening has traditionally been conducted through laboratory microcosm studies; however, microcosm studies typically do not adequately represent subsurface conditions in the field, and often, the level of information obtained is not commensurate with the costs and time involved (Air Force Center for Environmental Excellence, Naval Facilities Engineering Service Center, and Environmental Security Technology Certification Program, 2004). The biotrap approach is deployed within a groundwater monitoring well, and thus reflect in situ conditions more accurately than samples that are transferred to the laboratory. The biotrap approach provides cost-effective preliminary information regarding preferred substrate(s) for this site.

##### **10.4.1 Methodology**

Biotraps were installed in monitoring wells W9-20 and W9-46. Biotraps were suspended in groundwater, allowing native bacteria growing within the aquifer to colonize the traps and form biofilms on the traps. The biotraps were baited (impregnated) with various substrates to assess the response of the in situ community (Table 10-6). An unbaited biotrap (containing no substrate) was also included in each well as a control.

The biofilms accumulated on the traps were extracted and analyzed via quantitative polymerase chain reaction for the following:

- Eubacteria (which represents total viable biomass)
- *Dehalococcoides* spp., the only organism known to bring about complete reductive dechlorination of chlorinated VOCs to ethene
- Methanogenic bacteria (methanogens), which provide an indication of the subsurface redox environment

The biofilms were also subjected to phospholipid fatty acid analysis for the following:

- Total viable biomass
- Microbial community structure, denoting percentages of metabolically specific groups of microbes

The data were used to provide preliminary screening information regarding the most effective substrate for enhanced in situ bioremediation for remediation of PCE related to the former Building 88.

#### 10.4.2 Results

Data from phospholipid fatty acids and quantitative polymerase chain reaction analysis of biofilms accumulated on the biotrap indicated that there may be differences in the stimulatory effects of the various substrates tested on the native microbial community. These data are presented and discussed in the following subsections.

##### 10.4.2.1 Phospholipid Fatty Acid Analysis

Phospholipid fatty acids are essential components of the membranes of virtually all living cells, but break down rapidly upon cell death, and thus reflect only viable biomass. Various phospholipid fatty acids are produced by different types of organisms, and thus overall phospholipid fatty acid profiles can be used to “fingerprint” the in situ microbial community. Phospholipid fatty acids can also vary based on environmental conditions. Three different types of information can be obtained from phospholipid fatty acid profiles: biomass, community structure (including identification of general groups of bacteria that carry out various metabolic functions), and physiological status. The following discussions focus on biomass and specific community members as indicators of the potential for reductive dechlorination. Relevant phospholipid fatty acid data are presented in Table 10-7.

**Total Phospholipid Fatty Acid Biomass:** As can be seen in Table 10-7, biomass was generally observed to be at least one order of magnitude higher in baited traps than in control traps. Molasses was the most effective substrate in this regard, with HRC<sup>®</sup> and EHC<sup>™</sup> demonstrating significant effects as well. This does not provide specific information regarding reductive dechlorination, but provides further confirmation that biomass can be effectively stimulated via substrate addition.

**Community Structure:** The groups of interest are the *Firmicutes* and the sulfur-reducing bacteria. *Firmicutes* are indicated by the presence of terminally branched saturated phospholipid fatty acid and include anaerobic fermentors (mainly clostridia/bacterioides-like organisms) that produce the hydrogen required by reductive dechlorinators. Sulfur-reducing bacteria are indicated by the presence of mid-chain branched saturated phospholipid fatty acids, and high percentages are suggestive of strongly reducing conditions (White et al., 1997).

For the biotrap samples installed in groundwater monitoring well W9-20, phospholipid fatty acids indicative of *Firmicutes* were not detected in the control trap but were detected in all other baited traps. Sodium lactate, HRC<sup>®</sup>, and molasses had relatively high percentages of *Firmicutes*, with sodium lactate and HRC<sup>®</sup> having the highest percentages. For the biotrap samples installed in groundwater monitoring well W9-46, phospholipid fatty acid indicative of *Firmicutes* were found at a relatively high percentage in the control trap, but were detected at much higher percentages in traps baited with molasses and HRC<sup>®</sup>. Overall, these data suggest that HRC<sup>®</sup>, molasses, and sodium lactate were most effective in stimulating fermenting bacteria, which generate hydrogen that drives reductive dechlorination.

Phospholipid fatty acids indicative of sulfur-reducing bacteria were not detected in either control trap, but were detected in all baited traps except for the Edible Oil Substrate in monitoring well W9-46. The substrates that showed the greatest propensity for stimulation of sulfur-reducing bacteria (indicative of low redox environments) included HRC<sup>®</sup>, sodium lactate, and molasses, with HRC<sup>®</sup> having the greatest effect in groundwater monitoring well W9-46.

#### 10.4.2.2 Quantitative Polymerase Chain Reaction

The quantitative polymerase chain reaction data allow the assessment of substrates in terms of their ability to stimulate general biomass and *Dehalococcoides* spp., which are both desirable with respect to generating conditions supportive of reductive dechlorination and carrying out the complete metabolic pathway. In addition, the presence of methanogens indicates a low oxidation-reduction potential, but excessive methanogenic activity can compete with reductive dechlorination for substrate and potentially inhibit the process. The results from the quantitative polymerase chain reaction analysis are presented in Table 10-8 and are discussed in the following subsections.

***Dehalococcoides* spp:** *Dehalococcoides* spp. were not detected in any of the traps installed in groundwater monitoring well W9-20 but were detected in two of the traps installed in groundwater monitoring well W9-46. This confirms the presence of, and ability to stimulate, *Dehalococcoides* spp. at this site. However, this does not provide information regarding the distribution of *Dehalococcoides* spp. The traps in which *Dehalococcoides* spp. were detected were baited with sodium lactate and HRC<sup>®</sup>. Both of these compounds are lactate-based, which

suggests that lactate has the potential for stimulating complete reduction of chlorinated VOCs at this site, based on its ability to promote growth of *Dehalococcoides* spp.

**Eubacteria:** Measurement of eubacteria detects deoxyribonucleic acid sequences that are present in essentially all bacteria and thus provides for quantification of the total biomass represented by the complete microbial community. Eubacteria data suggest that total biomass in the baited traps is generally higher than that in the control traps. However, this is not conclusive, as one or more orders of magnitude differences are generally considered indicative of significant differences in bacterial numbers. The highest biomass was measured in the trap baited with HRC<sup>®</sup>, installed in groundwater monitoring well W9-46.

**Methanogenic Bacteria:** The presence/proliferation of methanogenic bacteria indicates the presence of strongly reducing conditions, which are favorable for reductive dechlorination. Methanogenic bacteria were detected in biofilms in all traps installed in both groundwater monitoring wells, including control traps. For groundwater monitoring well W9-20, values from the baited traps did not appear to be elevated over control traps, with the exception of the traps baited with sodium lactate and Edible Oil Substrate. For groundwater monitoring well W9-46, quantities of methanogenic bacteria detected on baited traps were at least one order of magnitude greater than the control trap. This provides some evidence of the occurrence of anaerobic bioprocesses under conditions that support reductive dechlorination.

#### 10.4.3 Conclusions

Data from the biotrap build upon the biomarker data generated in analysis of soil and groundwater, which indicated the presence of viable biomass and *Dehalococcoides* spp. in the subsurface at this site. General conclusions from the biotrap work are as follows:

- All substrates tested demonstrated the ability to stimulate microbial growth.
- Methanogenic populations were elevated in baited traps versus controls, demonstrating the ability to stimulate strongly reducing conditions required for reductive dechlorination.
- Phospholipid fatty acid biomarkers indicative of *Firmicutes* and sulfur-reducing bacteria generally comprised higher percentages of total phospholipid fatty acid in baited traps versus non-baited traps, indicating the ability to stimulate anaerobic processes supportive of reductive dechlorination.
- Lactate-based substrates, and particularly HRC<sup>®</sup>, are potentially the most effective substrate for use in enhanced in situ bioremediation at this site.

Overall, these data support the potential for successful implementation of enhanced in situ bioremediation without bioaugmentation through provision of a lactate-based substrate. However, analysis of microbial biomarkers on baited biotrap does not demonstrate that complete reductive dechlorination will occur. Rather, it provides evidence that the indigenous



community has the potential metabolic capability to bring about the process when provided with a particular substrate.

## 11.0 CONCLUSIONS

This investigation was performed to determine if residual contamination from Building 88 existed, and if present, if such contamination was contributing tetrachloroethene (PCE) contamination to the shallow groundwater.

### 11.1 INTERPRETED GEOLOGY AND HYDROSTRATIGRAPHY

The subsurface beneath the Building 88 investigation area is characterized by interbedded coarse-grained soil (sands and gravels) and fine-grained soil (silts and clay). The distribution of coarse-grained and fine-grained soil differ based on location and depth. Coarse-grained soil, where continuous, trends north-south.

The upper 17 feet of the investigation area contains mostly fine-grained soil, with isolated native coarse-grained deposits. Anastomosing coarse-grained soil channels are observed from approximately 20 feet to approximately 32 feet below ground surface (bgs) and are interbedded with fine-grained overbank deposits. These channels are observed at depth intervals of approximately 20 to 25 feet bgs and 29 to 32 feet bgs, and are encased in fine-grained soil. The channels are depicted as continuous, but these channels could also be a series of laterally and vertically interconnected segments of channels. The thickness of the channels varies spatially, but averages approximately 2 feet. There appears to be little to no single coarse-grained layer vertically connecting these two intervals.

Two relatively continuous channel deposits of coarse-grained soil are observed from approximately 40 to 46 feet bgs and 45 to 52 feet bgs in the western portion of the study area. The channels are depicted as continuous, but these channels could also be a series of laterally and vertically interconnected segments of channels. The deposits range in thickness from approximately 1 to 6 feet and are separated by approximately 1 to 4 feet of silt.

The distribution of coarse-grained and fine-grained sediment layers above approximately 35 feet bgs (analogous to the upper portion of the A aquifer) and below 35 feet bgs (analogous to the lower portion of the A aquifer) suggests two separate fluvial depositional environments. The discontinuous nature of the coarse-grained layers encased in fine-grained soil from surface to 35 feet bgs is typical of a braided fluvial environment. The deposits apparent below 40 feet bgs may be indicative of a floodplain environment. This interpretation of differing hydrogeologic conditions is consistent with what was observed during pump testing, as described in the *West-Side Aquifers Treatment System [WATS] Optimization Completion Report* (Tetra Tech FW [TuFW], 2005c). Based on water levels shown in the upper portion of the A aquifer in December 2004, in the area of WATS extraction well EA2-2 (TuFW, 2005b), there is hydraulic

communication between the lower portion of the A aquifer and the upper portion of the A aquifer.

## **11.2 CLASSIFICATION OF GROUNDWATER**

The majority of the groundwater data clusters together as a high calcium/sulfate water. The data suggest no spatial variance (vertically or laterally) and limited variance in chemical composition. The similarity in water vertically and laterally is interpreted to suggest that there is hydraulic communication vertically and laterally within the A aquifer.

## **11.3 SOURCE EVALUATION AND CONTAMINANT FATE AND TRANSPORT**

For this investigation, soil with PCE concentrations greater than the U.S. Environmental Protection Agency (EPA) Region 9 residential Preliminary Remediation Goal (PRG) of 480 µg/kg (EPA, 2004b) was considered a PCE source area. Two PCE source areas were identified and confirmed during the investigation: the eastern and northern portion of the Building 88 footprint; and the traffic island located at the corner of Cummins Avenue, Cody Road, and Wescoat Road.

### **11.3.1 Former Building 88 Area Soils**

The former dry cleaning facility had numerous wastewater collection trenches, floor drains, subsurface piping and sumps. Whether through cracks in the wastewater collection trenches, floor drains, subsurface piping and/or sump, PCE was released into the subsurface. Releases occurred in two areas: in the area of Sump 66 and in the eastern section of the Building 88 footprint. The maximum PCE concentration in soil samples was collected beneath the Building 88 footprint (6,700 micrograms per kilogram [µg/kg]), located in the area of Sump 66. There is de minimus soils contamination found in the southern and western portion of the Building 88 footprint.

The majority of PCE soil contamination greater than the residential soils PRG of 480 µg/kg is relatively shallow. Soil with PCE concentrations greater than 480 µg/kg extends to a maximum depth of approximately 35 feet bgs in the Sump 66 vicinity. It ranges from 20 to 32 feet bgs along a former floor drain line upstream of Sump 66 and approximately 20 feet bgs underlying the northern excavation area. Shallow PCE contamination in soil in the Building 88 area does not extend laterally much farther than the building footprint. The estimated volume of soil with PCE concentrations greater than 480 µg/kg within the Building 88 area is 775 cubic yards. The estimated mass of PCE in the soil concentrations greater than 480 µg/kg within the Building 88 area is 2.5 pounds.

### 11.3.2 Traffic Island Area Soils

The bulk of the soil contamination at the traffic island area (at concentrations greater than the residential soils PRG) is centered in the area of an apparent historic leak from the sewer at or downstream from a 90° bend at the traffic island at the intersection of Wescoat Road, Cody Road, and Cummins Avenue. The sewer was the discharge for wastewater from the Building 88's Sump 66. PCE contamination at the traffic island appears to have migrated vertically downward and laterally along the sewer trench to the north. The PCE soil contamination greater than the residential soils PRG of 480 µg/kg extends vertically to about 70 feet bgs below the leak in the sewer. The volume of PCE-contaminated soils at concentrations greater than 480 µg/kg in the traffic island area is calculated to be 12,400 cubic yards. The estimated mass of PCE in the soil concentrations greater than 480 µg/kg in the traffic island area is calculated to be 32 pounds.

### 11.3.3 Building 88 Area Groundwater

PCE concentrations in groundwater samples collected beneath the Building 88 area range from less than the laboratory reporting limit of 0.5 micrograms per liter (µg/L) to a high estimated value of 2,100 µg/L. In general, in the southern and western portion of the Building 88 footprint, PCE concentrations are less than 20 µg/L in the upper 30 feet bgs (upper portion of the A aquifer), and less than the EPA Region 9 drinking water Maximum Contaminant Level of 5 µg/L in samples collected from below 30 feet bgs (lower portion of the A aquifer).

In the eastern portion of the Building 88 footprint and in the area of Sump 66, PCE concentrations in groundwater samples are highest in the upper 15 feet (to a maximum concentration of 1,100 µg/L). The relative magnitude and location of the groundwater contamination to a depth of 20 feet bgs is consistent with the shallow soils contamination found in the eastern portion of Building 88 and in the area of Sump 66. An increase in both PCE concentration and volume of impacted groundwater at 21 to 30 feet bgs may be due to lithology, as there are more permeable soils found at this depth interval.

PCE concentrations in groundwater increase with depth to the north of the Building 88 area at depths greater than 30 feet bgs (lower portion of the A aquifer) to a maximum estimated value of 2,100 µg/L in a groundwater sample collected from 56 to 59 feet bgs. It appears that PCE-contaminated groundwater (possibly as dense non-aqueous phase liquid [DNAPL]), moved vertically downward to about the 20-foot bgs depth underlying the former building. At the 21- to 30-foot bgs depth interval, the PCE-contaminated groundwater moved advectively and/or down-dip to the north, if in DNAPL phase. PCE contamination then found a vertical pathway and moved to the investigated depth of about 60 feet bgs. PCE-contaminated groundwater in the lower A aquifer appears to be moving generally downgradient by advection in the more permeable units. The apparent northeastern localized flow direction may be caused by a combination of lithology (channelization) and pumping of the lower A aquifer.

#### 11.3.4 Traffic Island Area Groundwater

PCE concentrations in groundwater samples collected south (hydraulically upgradient) of the traffic island were less than the PCE MCL of 5 µg/L. Concentrations of PCE in groundwater samples collected from beneath the traffic island ranged from 2,000 µg/L to 15,000 µg/L. PCE concentrations in groundwater decrease to the north.

The PCE groundwater contamination to a depth of 15 feet bgs has an elongated shape, which is likely controlled by the utility corridor underlying Cummins Avenue and Wescoat Road. There is an apparent increase in PCE concentration and decrease in volume of impacted groundwater at the 16- to 20-foot bgs interval, which may be due to encountering native fine-grained soils restricting the movement of PCE contamination. Below a depth of 30 feet bgs, PCE contaminant migration appears to be controlled by the more permeable layers of soil.

It appears that PCE contamination moved vertically down to a depth of about 70 feet bgs below the traffic island and did not fully penetrate a clay layer at this depth. Based on the PCE concentrations measured in this investigation, the vertical movement of contamination in the traffic island was likely a combination of DNAPL and dissolved phase. DNAPL is likely still present and can be detected in field samples in the depth interval of 6 to 20 feet bgs in the traffic island.

#### 11.3.5 Downgradient PCE Plume

The source area for both the upper and lower A aquifer PCE plumes appears to be related to the northern and eastern portion of the Building 88 area, Sump 66, the Sump 66 discharge sewer along Wescoat Road, and at the traffic island along Cummins Avenue. There are two PCE plume lobes within the upper portion of the A aquifer. The lobe to the east is a narrow linear feature along Cummins Avenue. The eastern lobe, found in the shallowest portions of the upper A aquifer, is interpreted to be controlled by the backfill of the utilities along Cummins Avenue. The eastern lobe is about 1,000 feet long and generally less than 50 feet wide. The concentrations of PCE in the eastern lobe of the upper A aquifer decrease to the north, away from the traffic island source area. The highest concentration of PCE within the eastern lobe, downgradient of the traffic island source area, was reported at an estimated concentration of 830 µg/L. The western PCE lobe is approximately 2,000 feet long and from 150 to 250 feet wide. The plume has an elongated shape in a north-south direction, is interpreted to be due to the channelization characteristics of coarse-grained soil, and may be influenced by extraction well pumping from the upper A aquifer. The highest concentration of PCE within the western lobe, downgradient from the former Building 88 source area, was reported at an estimated concentration of 150 µg/L. The total amount of PCE in the upper portion of the A aquifer, including the eastern and western lobes, is calculated to be 48 pounds.

The PCE groundwater plume, as detected in the lower A aquifer is approximately 1,600 feet long and varies from 250 to 500 feet wide. The plume is located immediately west of Hangar 1. The northern edge of the PCE plume is lobate. The highest concentration of PCE within the lower portion of the A aquifer, downgradient of the Building 88 or traffic island areas, was at an estimated concentration of 530 µg/L. The amount of PCE in the lower portion of the A aquifer is calculated to be 70 pounds.

Horizontal migration of PCE-contaminated groundwater from the Building 88 and the traffic island areas appear to be limited in the upper 30 feet by the lack of continuous sand channels. Although shallow (less than 30 feet bgs) PCE concentrations are high within permeable lenses in the Building 88 and traffic island areas, the downgradient concentrations in the upper portion of the A aquifer are significantly lower. It is likely that the lower PCE concentrations in the upper A aquifer downgradient of the source areas are a function of sorption, dispersion, and dilution.

Horizontal migration of PCE-contaminated groundwater from the Building 88 and the traffic island areas appears to be prevalent below 30 feet due to the north-south continuity of sandy soils in the 40- to 46-foot interval and 45- to 52-foot interval of the lower A aquifer influenced by extraction well pumping in the lower A aquifer. Although PCE concentrations at depths greater than about 35 feet bgs are relatively high within lenses in the Building 88 and traffic island areas, the downgradient PCE concentrations in the lower portion of the A aquifer are significantly lower. It is likely that the lower PCE concentrations in the lower A aquifer downgradient of the source areas are a function of sorption, dispersion, and dilution.

There appears to be de minimus PCE impacting the B2 aquifer zone.

## **11.4 TREATABILITY STUDIES**

Soil and groundwater samples were collected to conduct chemical oxidation treatability tests, to evaluate the presence of naturally occurring microorganisms capable of biodegrading chlorinated VOCs, and to assess the response of microorganisms to various substrates.

### **11.4.1 Chemical Oxidation**

The chemical oxidation (Fenton's reagent) study results for groundwater indicated that a 99.7 percent volatile organic compound (VOC) concentration reduction was noted after the lowest treatment condition (one dose). The study results for the soil-water slurry indicate a persistence of PCE (39 percent), cis-1,2-dichloroethene (cis-1,2-DCE) (5 percent), and trichloroethene (TCE) (35 percent) after three dosages, and a slight rebound of PCE and TCE concentrations.

#### 11.4.2 Biomarker Analysis

The biomarker analysis yielded the following general conclusions:

- Results from the phospholipid fatty acid analysis showed that viable biomass is present in quantities that are generally considered to be moderate and would be supportive of enhanced in situ bioremediation.
- The microbial community appears to be reasonably diverse.
- *Dehalococcoides* spp. were detected at relatively high concentrations for a non-substrate-amended site, and the distribution appears to vary.
- Functional genes were detected at low frequency.
- Although not definitive, the presence of *Dehalococcoides* spp., along with significant amounts of cis-1,2-DCE and trace amounts of vinyl chloride (VC), suggests that the native *Dehalococcoides* spp. strain is likely substrate limited, but it may not be capable of carrying out reductive dechlorination of cis-1,2-DCE to VC.

Overall, these data suggest that microbial presence/activity would not be a barrier to enhanced in situ bioremediation. In addition, because *Dehalococcoides* spp. is present at the site in relatively high concentrations, this site appears to be a reasonable candidate for biostimulation through substrate addition. However, based on significant cis-1,2-DCE concentrations and the relatively low concentrations of VC, the conversion of cis-1,2-DCE to VC may be initially slow.

#### 11.4.3 Substrate Screening

Data from the biotrap build upon the biomarker data generated in analysis of soil and groundwater, which indicated the presence of viable biomass and *Dehalococcoides* spp. in the subsurface at this site. General conclusions from the biotrap work are as follows:

- All substrates tested demonstrated the ability to stimulate microbial growth.
- Methanogenic populations were elevated in baited traps vs. controls, demonstrating the ability to stimulate strongly reducing conditions required for reductive dechlorination.
- Phospholipid fatty acid biomarkers indicative of *Firmicutes* and sulfur-reducing bacteria generally comprised higher percentages of total phospholipid fatty acid in baited traps versus non-baited traps, indicating the ability to stimulate anaerobic processes supportive of reductive dechlorination.
- Lactate-based substrates, particularly HRC<sup>®</sup>, are potentially the most effective substrate for use in enhanced in situ bioremediation at this site.

Overall, these data support the potential for successful implementation of enhanced in situ bioremediation without bioaugmentation through provision of a lactate-based substrate. However, analysis of microbial biomarkers on baited biotrap does not demonstrate that

complete reductive dechlorination will occur. Rather, it provides evidence that the indigenous community has the potential metabolic capability to bring about the process when provided with a particular substrate.



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## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 6-2

### UPPER A AQUIFER PCE CONCENTRATION COMPARISON DECEMBER 2004 AND APRIL 2005 FORMER NAS MOFFETT FIELD MOFFETT FIELD, CA

Well Location	PCE Concentrations December 2004 (µg/L)	PCE Concentrations April 2005 (µg/L)
I4D29A	68	49
WIC-1	10J	12
W29-3	5J	6.5
W29-4	4U	0.5U
W9-46	230	150J

*Notes:*

Bold – Indicates value above method detection limit

*Abbreviations and Acronyms:*

µg/L – micrograms per liter

CA – California

J – estimated value

NAS – Naval Air Station

PCE – tetrachloroethene

U – not detected at or above the laboratory reporting limit (value indicates the reporting limit)

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## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 6-3

### LOWER A AQUIFER PCE CONCENTRATION COMPARISON DECEMBER 2004 AND APRIL 2005 FORMER NAS MOFFETT FIELD MOFFETT FIELD, CA

Well Location	PCE Concentrations December 2004 (µg/L)	PCE Concentrations April 2005 (µg/L)
W9-20	410J	530J
W9SC-15	180	170J
W9SC-3	82	67

*Notes:*

Bold – Indicates value above method detection limit

*Abbreviations and Acronyms:*

µg/L – micrograms per liter

CA – California

J – estimated value

NAS – Naval Air Station

PCE – tetrachloroethene

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## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 8-1

### CPT SOIL CLASSIFICATION FOR CROSS SECTIONS FORMER NAS MOFFETT FIELD MOFFETT FIELD, CA

CPT Description	Model Input *
Clay	CL (clay)
Silty clay	CL (clay)
Clayey silt	ML (silt)
Silt	ML (silt)
Sandy silt	ML (silt)
Silty sand	SM (silty sand)
Sand	SP (poorly graded sand)
Gravelly sand	GP/GM (poorly graded gravel with silt and sand)

**Notes:**

\* Unified Soil Classification System group symbols were used for generalized Rockworks™ 2004 model input.

**Abbreviations and Acronyms:**

CA – California

CPT – cone penetrometer testing

NAS – Naval Air Station



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# FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 10-I

## GROUNDWATER TREATABILITY STUDY RESULTS FORMER NAS MOFFETT FIELD MOFFETT FIELD, CA

Sample ID Catalyst Used Oxidant Used Number of Doses of Treatment	GW/Control None None 0	GW/T-A Cat-4260 H <sub>2</sub> O <sub>2</sub> 1	GW/T-B Cat-4260 H <sub>2</sub> O <sub>2</sub> 2	GW/T-C Cat-4260 H <sub>2</sub> O <sub>2</sub> 3
<b>VOCs (µg/L)</b>				
1,1-Dichloroethene	55.4	U<0.36	U<0.36	U<0.36
1,1-Dichloroethane	24.9	11.4	6.48	3.34
cis-1,2-Dichloroethene	2,990	U<0.30	U<0.30	U<0.30
Trichloroethene	679	U<0.35	U<0.35	U<0.35
Tetrachloroethene	175	0.854	U<0.45	U<0.45
TOTAL VOCs	3,924.3	12.254	6.48	3.34
TOTAL TICs	U	12.6	41	62.4
<b>% Reduction</b>				
Total VOCs	--	99.7%	99.8%	99.9%
Total TICs	--	--	--	--
Final pH Value	6.51	6.56	6.53	6.49

### Notes:

The above list includes the compounds that were detected in at least one sample in the treatability study. The entire list of 37 target compounds analyzed, plus TICs, along with chain-of-custody were provided in Appendix H. All "% reduction" are relative to the "control" sample with assumption of "U" values equal to zero  
Bold – Indicates value above method detection limit for VOC analysis only

### Abbreviations and Acronyms:

µg/L – micrograms per liter

CA – California

Cat-4260 – Catalyst 4260

GW - groundwater

H<sub>2</sub>O<sub>2</sub> – hydrogen peroxide

-- – not analyzed (for pH value), or not calculated (for % reduction)

MDL – method detection limit

NAS – Naval Air Station

TIC – tentatively identified compound

U – not detected at or above the laboratory reporting limit (value indicates the reporting limit)

VOC – volatile organic compound

# FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 10-2

## SLURRY TREATABILITY STUDY RESULTS FORMER NAS MOFFETT FIELD MOFFETT FIELD, CA

Sample ID Catalyst Used Oxidant Used Number of Doses of Treatment	SL/Control None None 0	SL/T-A Cat-4260 H <sub>2</sub> O <sub>2</sub> 1	SL/T-B Cat-4260 H <sub>2</sub> O <sub>2</sub> 2	SL/T-C Cat-4260 H <sub>2</sub> O <sub>2</sub> 3
<b>VOCs (µg/kg)</b>				
1,1-Dichloroethene	U<5.95	U<5.95	U<5.95	U<5.95
1,1-Dichloroethane	U<5.95	U<5.95	U<5.95	U<5.95
cis-1,2-Dichloroethene	922	116	56	49
Trichloroethene	637	298	200	226
Tetrachloroethene	109	47	36	42
<b>TOTAL VOCs</b>	<b>1,668</b>	<b>461</b>	<b>292</b>	<b>317</b>
<b>TOTAL TICs</b>	<b>U</b>	<b>U</b>	<b>U</b>	<b>U</b>
<b>% Reduction</b>				
Total VOCs	--	72.4%	82.5%	81.0%
Total TICs	--	--	--	--
Final pH Value	6.99	6.74	6.87	7.32

### Notes:

The above list includes the compounds that were detected in at least one sample in the treatability.

The entire list of 37 target compounds analyzed, plus TICs, along with chain-of-custody were provided in Appendix H.

All “% reduction” are relative to the “control” sample with assumption of “U” values equal to zero.

Bold - Indicates value above method detection limit for VOC analysis only

### Abbreviations and Acronyms:

µg/kg – micrograms per kilogram

CA – California

Cat-4260 – Catalyst 4260

H<sub>2</sub>O<sub>2</sub> – hydrogen peroxide

-- – not analyzed (for pH value), or not calculated (for % reduction)

MDL – method detection limit

NAS – Naval Air Station

TIC – tentatively identified compound

U – not detected at or above the laboratory reporting limit (value indicates the reporting limit)

VOC – volatile organic compound

# FORMER BUILDING 88 INVESTIGATION REPORT

TABLE I0-3

## VOC CONCENTRATIONS ANALYSIS FOR BIOMARKER SAMPLES FORMER NAS MOFFETT FIELD MOFFETT FIELD, CA

Sample Location and Depth Interval (feet bgs)	Matrix	VOC Concentrations (µg/L for groundwater; µg/kg for soil)			
		PCE	TCE	cis-1,2-DCE	VC
CPT-88-3 (10-14)	Groundwater	300	700	1,500	1.7
CPT-88-3 (46-48)	Groundwater	11	1,700	160	0.44J
CPT-88-3 (12-13)	Soil	3500	1,800	1,300	6U
CPT-88-3 (46.5-47.5)	Soil	2.5	310	14	6U
CPT-88-19 (6-9)	Groundwater	830	450	440	0.91
CPT-88-19 (47-50)	Groundwater	130	1,400	53	0.5U
CPT-88-19 (6-7)	Soil	540	280	300	6U
CPT-88-19 (48-49)	Soil	16	190	6.8	6U

### Notes:

Bold – Indicates value above method detection limit

### Abbreviations and Acronyms:

µg/kg – micrograms per kilogram

µg/L – micrograms per liter

bgs – below ground surface

CA – California

cis-1,2-DCE – cis-1,2-dichloroethene

J – estimated value

NAS – Naval Air Station

PCE – tetrachloroethene

TCE – trichloroethene

U – not detected at or above the laboratory reporting limit (value indicates reporting limit)

VC – vinyl chloride

VOC – volatile organic compound

# FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 10-4

## RESULTS OF PHOSPHOLIPID FATTY ACIDS ANALYSIS FOR TOTAL VIABLE BIOMASS AND PHYSIOLOGICAL STATUS MARKERS FORMER NAS MOFFETT FIELD MOFFETT FIELD, CA

Sample Location And Depth Interval (feet bgs)	Matrix	Total Biomass (cells/mL or g)	Slowed Growth Index <sup>a</sup>	Permeability Index <sup>b</sup>
CPT-88-3 (46-48)	Groundwater	1.92E+06	NS	0.30
CPT-88-3 (10-14)	Groundwater	9.94E+05	0.14	0.37
CPT-88-3 (12-13)	Soil	6.00E+06	0.45	0.15
CPT-88-3 (47-48)	Soil	1.57E+05	NS	NS
CPT-88-19 (6-9)	Groundwater	1.04E+06	0.90	0.24
CPT-88-19 (47-50)	Groundwater	2.31E+06	0.04	0.31
CPT-88-19 (6-7)	Soil	5.19E+05	1.77	NS
CPT-88-19 (48-49)	Soil	9.54E+04	NS	NS

**Notes:**

<sup>a</sup> Slow Growth Index – Ratio of the amount of specific phospholipid fatty acids produced in response to starvation or slow growth conditions to the amount produced under favorable normal conditions

<sup>b</sup> Permeability Index – Ratio of the amount of specific phospholipid fatty acids produced in response to toxic conditions to the amount produced under normal conditions

**Abbreviations and Acronyms:**

bgs – below ground service

CA – California

g – grams

mL – milliliter

NAS – Naval Air Station

NS – physiological status markers not detected

# FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 10-5

## RESULTS OF QUANTITATIVE POLYMERASE CHAIN REACTION ANALYSIS FOR DHC AND FUNCTIONAL GENES FORMER NAS MOFFETT FIELD MOFFETT FIELD, CA

Sample Location And Depth Interval (feet bgs)	Matrix	Units	DHC spp.	BAV1 VC R-Dase	TCE R-Dase
CPT-88-3 (46-48)	Groundwater	cells/mL	2.23E+01	<1.43E+00	<1.43E+00
CPT-88-3 (10-14)	Groundwater	cells/mL	2.22E+04	<8.67E+02	3.97E+03
CPT-88-3 (12-13)	Soil	cells/g	2.16E+04	<8.85E+02	<8.85E+02
CPT-88-3 (47-48)	Soil	cells/g	1.45E+03	<9.56E+02	<9.56E+02
CPT-88-19 (6-9)	Groundwater	cells/mL	<5.95E-01	<5.95E-01	<5.95E-01
CPT-88-19 (47-50)	Groundwater	cells/mL	<5.49E-01	<5.49E-01	<5.49E-01
CPT-88-19 (6-7)	Soil	cells/g	<9.84E+02	<9.84E+02	<9.84E+02
CPT-88-19 (48-49)	Soil	cells/g	9.72E+02	<8.87E+02	<8.87E+02

### Notes:

BAV1 is a species of DHC.

### Abbreviations and Acronyms:

bgs – below ground surface  
 CA – California  
 DHC – *Dehalococcoides* spp.  
 g – grams  
 mL – milliliter  
 NAS – Naval Air Station  
 spp. – species  
 TCE R-Dase – trichloroethene reductase  
 VC R-Dase – vinyl chloride reductase

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## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 10-6

### BIOTRAP SUBSTRATES FORMER NAS MOFFETT FIELD MOFFETT FIELD, CA

Substrate	Description	Vendor
Sodium lactate	Reagent-grade, from soluble substrate	JT Baker
Molasses	Soluble substrate	Generic
HRC <sup>®</sup>	Viscous fluid, proprietary formulation - slowly releases lactate upon hydration	Regenesis
Vegetable Oil	Viscous fluid, proprietary formulation - EOS	Solutions IES
EHC <sup>™</sup>	Solid (can be delivered as pellets, granules, flowable powders, or slurries), consists of plant-based carbon in conjunction with zero-valent iron	Adventus Americas
None	Control	N/A

#### Notes:

An unbaited trap (containing no substrate) was deployed in each well as a control along with baited traps.

EHC<sup>™</sup> is a substrate name.

Beads are 2-3 mm in diameter.

#### Abbreviations and Acronyms:

CA – California

EOS – Edible Oil Substrate

HRC<sup>®</sup> – Hydrogen Release Compound

mm – millimeter

N/A – not applicable

NAS – Naval Air Station



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# FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 10-7

## SELECTED RESULTS OF PHOSPHOLIPID FATTY ACIDS ANALYSIS FOR BAITED BIOTRAPS FORMER NAS MOFFETT FIELD MOFFETT FIELD, CA

Well Number	Matrix	Biomass (cells/bead)	<i>Firmicutes</i> <sup>1</sup> (% of total PLFA)	Sulfur-reducing Bacteria <sup>2</sup> (% of total PLFA)
W9-20	Sodium Lactate	4.27E+05	17.51	1.68
W9-20	Molasses	3.89E+06	13.93	1.55
W9-20	HRC®	2.46E+06	16.91	3.88
W9-20	EHC™	2.3E+06	3.16	0.51
W9-20	EOS	9.36+05	6.43	3.15
W9-20	Control	3.1E+04	0.00	0.00
W9-46	Sodium Lactate	7.24E+05	16.19	3.51
W9-46	Molasses	1.12E+07	28.16	5.50
W9-46	HRC®	2.51E+06	38.84	21.84
W9-46	EHC™	2.01E+06	9.03	2.14
W9-46	EOS	1.05E+06	4.74	0.00
W9-46	Control	1.31E+05	16.48	0.00

### Notes:

<sup>1</sup> As indicated by the presence of terminally branched saturated phospholipid fatty acid – high percentages indicate the presence of bacteria classified as *Firmicutes*, which include anaerobic fermentors (mainly clostridia/bacterioides-like organisms) that produce hydrogen required by reductive dechlorinators.

<sup>2</sup> As indicated by the presence of mid-chain branched saturated phospholipid fatty acid, which are common in sulfur-reducing bacteria – high percentages indicate the proliferation of sulfur-reducing bacteria and thus, are suggestive of strongly reducing conditions.

Beads are 2-3 mm in diameter.

### Abbreviations and Acronyms:

CA - California  
EOS – Edible Oil Substrate  
HRC® – Hydrogen Release Compound  
mm – millimeter  
NAS – Naval Air Station  
PLFA – phospholipids fatty acid

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# FORMER BUILDING 88 INVESTIGATION REPORT

TABLE 10-8

## RESULTS OF QUANTITATIVE POLYMERASE CHAIN REACTION ANALYSIS FOR BAITED BIOTRAPS FORMER NAS MOFFETT FIELD MOFFETT FIELD, CA

Well	Substrate	Units	DHC	Eubacteria	Methanogens
W9-20	Sodium Lactate	cells/bead	<2.5E+01	2.97E+07	1.3E+05
W9-20	Molasses	cells/bead	<2.5E+01	6.63E+07	6.29E+04
W9-20	HRC <sup>®</sup>	cells/bead	<2.5E+01	4.8E+07	9.53E+04
W9-20	EHC <sup>™</sup>	cells/bead	<2.5E+01	1.19E+07	4.86E+04
W9-20	EOS	cells/bead	<2.5E+01	4.29E+07	8.76E+05
W9-20	Control	cells/bead	<2.5E+01	1.4E+07	5.29E+04
W9-46	Sodium Lactate	cells/bead	1.45E+02	2.17E+07	4.75E+05
W9-46	Molasses	cells/bead	<2.5E+01	7.17E+07	2.29E+06
W9-46	HRC <sup>®</sup>	cells/bead	4.52E+01	8.18E+07	1.12E+06
W9-46	EHC <sup>™</sup>	cells/bead	<2.5E+01	1.25E+07	3.09E+05
W9-46	EOS	cells/bead	<2.5E+01	4.07E+07	2.51E+06
W9-46	Control	cells/bead	<2.5E+01	1.67E+07	9.68E+04

### Abbreviations and Acronyms:

CA – California

DHC – *Dehalococcoides* spp.

HRC<sup>®</sup> – Hydrogen Release Compound

EOS – Edible Oil Substrate

NAS – Naval Air Station

spp. – species

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## **APPENDIX A**

### **PROJECT PHOTOGRAPHS**

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**APPENDIX B**

**ANALYTICAL RESULT REPORTS AND  
CHAIN-OF-CUSTODY DOCUMENTATION**

**(Provided on CD)**



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## **APPENDIX C**

### **LOCATION SURVEY DATA**

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**APPENDIX D**

**CONTINUOUS CORE BORING PERMIT,  
CONTINUOUS CORE LITHOLOGIC LOGS,  
MONITORING WELL BORING AND CONSTRUCTION LOGS,  
AND MONITORING WELL DEVELOPMENT LOGS**

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**APPENDIX E**

**CONE PENETROMETER TEST**

**BORING PERMITS AND LITHOLOGIC LOGS**

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**APPENDIX F**

**LOW-FLOW GROUNDWATER  
SAMPLING DATA SHEETS**



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**APPENDIX G**

**QUALITY ASSURANCE/  
QUALITY CONTROL REPORT**

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**APPENDIX H**

**ISOTEC LABORATORY TREATABILITY  
STUDY REPORT**

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**APPENDIX I**

**MICROBIAL INSIGHTS TREATABILITY  
STUDY REPORT**

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Date 8-22-05

Well Name <u>W88-1</u>	Screen Interval <u>72-82</u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>Bldg. 88 B2 wells</u>	Station Elevation <u>---</u> GND <u>---</u> TOC <u>---</u>	
Project No. <u>1990.0858.0711.6200</u>	Static Water Level (from TOC) / Time <u>4.08</u> <u>4.08</u>	
Well Location <u>West-Side MFA</u>	Average Water Level (from TOC) <u>4.08</u> <u>6.0711</u>	
Sample Date <u>8-22-05</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0-0</u>
Sampling Personnel <u>B. Bartelma</u>	Reference Elevation <u>N/A</u>	PID Reading (TOC) <u>0-0</u>
<u>P. Graziani</u>	Static Elevation <u>N/A</u>	Notes
	Well Depth MEAS <u>96.05</u> RPTD <u>N/A</u>	Feel of Water <u>N/A</u>
Sample ID <u>86-W88-143</u>	Depth of Bottom of Tubing <u>71</u>	
Duplicate ID <u>86-W88-144</u>	Depth to Water (w/ Tubing in Well) <u>4.05</u>	

## PURGING

[illegible]

Notes:

1. Purge rate = 0.2 - 0.5 L/minute
2. Drawdown shall be <0.33 foot

### SAMPLE PARAMETERS

CLP OLM 04.2						
--------------	--	--	--	--	--	--

**SAMPLE RATE**

0.7							
-----	--	--	--	--	--	--	--

## References

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well:

Remarks:

## FIELD EQUIPMENT

pH Meter	Hydrolab	Serial Number	R41759	Number of Bottles	3
Temperature Meter	Hydrolab	Serial Number			
Turbidity Meter	LaMotte 2020	Serial Number	2533-1701		
Spec. Elec. Cond. Meter	Hydrolab	Serial Number	R41759	Field Notebook	WATS 04 / R41759
ORP Meter	Hydrolab	Serial Number			
D.O. Meter	Hydrolab	Serial Number		Sample Method	
Interface Probe	100 foot Heron	Serial Number	39503		
PI/D/OVA	MiniRAE 2000	Serial Number	00320		Low Flow
Pump	Peristaltic-GeoPump	Serial Number	A99001962		
Filter Apparatus	0.45 Micron			Discharge Water Containerized	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



Well Name <u>W88-2</u>	Screen Interval <u>77-87</u>	Station Elevation <u>---</u> GND <u>---</u> TOC <u>---</u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>Bldg 88 R2 wells</u>	Static Water Level (from TOC) / Time <u>11:80 12:43</u> <u>11:79 12:43</u> <u>11:78 12:43</u>	Average Water Level (from TOC) <u>11:78 12:43</u> <u>0 0 0 1</u>	
Well Location <u>West Side MFA</u>	Reference Point <u>TOC</u>	P/D Readings (background) <u>0 0</u>	
Sample Date <u>8-22-05</u>	Reference Elevation <u>N/A</u>	P/D Reading (TOC) <u>0 0</u>	
Sampling Personnel <u>B. Bartelma</u>	Static Elevation <u>N/A</u>	Notes	
<u>P. Graziani</u>	Well Depth MEAS <u>86.65</u> RPTD <u>N/A</u>	Feet of Water <u>N/A</u>	
Sample ID <u>86-WOPT-141</u>	Depth of Bottom of Tubing <u>82</u>	Depth of Water (w/ Tubing in Well) <u>11:80</u>	
Duplicate ID			

[illegible]

### Isolation

1. Purge rate =  $0.2 \cdot 0.5 \text{ L/min}$ 

2. Drawdown shall be  $\leq 33$  feet

### SAMPLE PARAMETERS

C.P.OLM 04.2						
--------------	--	--	--	--	--	--

**SAMPLE RATE**

9.2							
-----	--	--	--	--	--	--	--

## Notes:

1 Sample rate for VOCs analysis = 0.1 - 0.2 L/minute

2. Sample rate for non-VDCs analysis = purge rate  $\times 0.2 = 0.5$  L/minute

Condition of Well:

Remarks:

## FIELD EQUIPMENT

pH Meter	Hydrolab	Serial Number	941759	Number of Bottles	3
Temperature Meter	Hydrolab	Serial Number	2533-1701		
Turbidity Meter	LaMotte 2020	Serial Number	941759	Field Notebook	WATS Opt. / Bldg. 85
Spec. Elec. Cond. Meter	Hydrolab	Serial Number			
ORP Meter	Hydrolab	Serial Number		Sample Method	
D.O. Meter	Hydrolab	Serial Number	39503		Low Flow
Interface Probe	100 foot Hiron	Serial Number	00320		
PID/OVA	MiniRAE 2000	Serial Number	99001962		
Pump	Peristaltic-GeoPump	Serial Number			
Filter Apparatus	0.45 Micron			Discharge Water Containerized	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Date 8-22-05

Well Name <u>W 88-3</u>	Screen Interval <u>79-89</u>	Station Elevation <u>---</u> GND <u>---</u> TDC <u>---</u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>Bldg 88 B2 wells</u>	Static Water Level (from TOC) / Time <u>10.73</u>	Average Water Level (from TOC) <u>10.73</u>	<u>10.73</u>
Project No. <u>1990.0868.0711.62000</u>	Well Location <u>West-Side MFA</u>	Reference Point <u>TDC</u>	PID Readings (background) <u>0.0</u>
Well Date <u>8-22-05</u>	Sampling Personnel <u>B. Bartelme</u>	Reference Elevation <u>N/A</u>	PID Reading (TOC) <u>0.0</u>
	<u>P. Graziani</u>	Static Elevation <u>N/A</u>	Notes
	Well Depth MEAS <u>89.15</u> RPTD <u>N/A</u>	Feet of Water <u>N/A</u>	
Sample ID <u>86-W0PT-142</u>	Depth of Bottom of Tubing <u>84</u>		
Duplicate ID	Depth to Water (w/ Tubing in Well) <u>10.77</u>		

## PURGING

[illegible]

## Notes

1. Purge rate = 0.2 - 0.5 U/minute
2. Drawdown shall be  $\leq 33$  feet.

### SAMPLE PARAMETERS

CLP QLM 04.2							
--------------	--	--	--	--	--	--	--

**SAMPLE RATE**

[illegible]

## Notes

- 1 Sample rate for VOCs analysis = 0.1 - 0.2 L/minute  
2 Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well:

Remarks:

## FIELD EQUIPMENT

pH Meter	Hydrolab	Serial Number	84759	Number of Bottles	3
Temperature Meter	Hydrolab	Serial Number			
Turbidity Meter	LaMotte 2020	Serial Number	2533-1701		
Spec. Elec. Cond. Meter	Hydrolab	Serial Number	84759	Field Notebook	WATS Opt. 18g-88
ORP Meter	Hydrolab	Serial Number			
D.O. Meter	Hydrolab	Serial Number		Sample Method	
Interface Probe	100 foot Haron	Serial Number	39503		Low Flow
PID/OVA	MinirAE 2000	Serial Number	00320		
Pump	Peristaltic-GeoPump	Serial Number	A99001962		
Filter Apparatus	0.45 Micron			Discharge Water Containerized	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

# Building 88 GW SAMPLING

Analytical Method				VOCs by CLP 014-042		EPA 500.0		EPA 501.1		EPA 4010B	
Analyte List				VOCs		Nitrate/nitrite/ chloride/sulfate		Alkalinity		calcium, iron, magnesium, sodium, potassium	
Well	Well Screen Interval	Sample #	Level	QC code	3x40 mL VOA Vials HCl	1 x 500 mL Poly No Pres.				1 x 500 mL Poly ENQ3	
14D29A	8.0-18.0	86-WOPT-105	4	REG	X	X	X	X	X	X	X
14D30A	6.5-16.5	86-WOPT-106	3	REG	X	X	X	X	X	X	X
14D30A	14.5-20.5	86-WOPT-107	4	REG	X	X	X	X	X	X	X
W2P-3	10.5-20.5	86-WOPT-108	3	REG	X	X	X	X	X	X	X
W2P-3	14.5-20.5	86-WOPT-109	4	PD	X	X	X	X	X	X	X
W2P-4	14.5-25.2	86-WOPT-110	3	REG	X	X	X	X	X	X	X
W2P-4	9.0-19.0	86-WOPT-111	3	REG	XXX	XXX	XXX	XXX	XXX	XXX	XXX
W2P-4	8.0-18.0	86-WOPT-112	3	REG	X	X	X	X	X	X	X
W2P-4	31.5-34.5	86-WOPT-113	3	REG	X	X	X	X	X	X	X
W2P-4	30.0-45.0	86-WOPT-114	3	REG	X	X	X	X	X	X	X
W2P-4	19.0-24.0	86-WOPT-115	3	REG	X	X	X	X	X	X	X
W2P-4	17.0-27.0	86-WOPT-116	3	REG	X	X	X	X	X	X	X
W2P-4	30.0-33.0	86-WOPT-117	3	REG	X	X	X	X	X	X	X
W2P-4	30.0-33.0	86-WOPT-118	3	TB	X	X	X	X	X	X	X
W2P-4	30.0-33.0	86-WOPT-119	3	TB	X	X	X	X	X	X	X
W2P-4	30.0-33.0	86-WOPT-120	3	TB	X	X	X	X	X	X	X
W2P-4	30.0-33.0	86-WOPT-121	3	TB	X	X	X	X	X	X	X
W2P-4	30.0-33.0	86-WOPT-122	3	TB	X	X	X	X	X	X	X

Notes:

PD = Field duplicate (same well location and identical analysis, but unique sample ID)

Lab: 10/10/10

Laboratory is APPL in Fresno and PO # 55462.

10/10/10

PUR: Building 88 GW samples ON BOTTOM RIGHT-HAND CORNER OF COC

LEVEL 4 IS 20% OF TOTAL NUMBER OF SAMPLES

PD IS 10% OF TOTAL NUMBER OF WELLS

MS/MSD CHOOSE ONE PER EVERY 20 SAMPLES COLLECTED

MS/MSD

## LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Page of

Date 4-27-05

Well Name <u>W9-20</u>	Screen Interval <u>30-45</u>	
Project <u>WATS Out - Building 66</u>	Station Elevation <u>- GND - TOC -</u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project No. <u>1990.096B.0711.62000</u>	Static Water Level (from TOC) / Time <u>5.47</u>	<u>5.47</u>
Well Location <u>West-Side MFA</u>	Average Water Level (from TOC) <u>5.47</u>	<u>01123</u>
Sample Date <u>4-28-05</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0.0</u>
Sampling Personnel <u>B. Bartelma</u>	Reference Elevation <u>-</u>	PID Reading (TOC) <u>0.0</u>
<u>M. Ramos</u>	Static Elevation <u>-</u>	Notes <u>-</u>
	Well Depth MEAS <u>43.80</u>	Feet of Water <u>-</u>
	<u>RPTD -</u>	
Sample ID <u>86-WDPT-114</u>	Depth of Bottom of Tubing <u>37</u>	
Duplicate ID <u>-</u>	Depth to Water (w/ Tubing in Well) <u>5.47</u>	

[illegible]

Notes:

1. Purge rate = 0.2 - 0.5 L/minute
2. Drawdown shall be  $<0.33$  foot

### SAMPLE PARAMETERS

VOCs	EPA 300.310-1	EPA 6010B						
SAMPLE RATE								
0.8	0.3	0.3						

Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: Near drawdown exceedance

## Remarks:

FIELD EQUIPMENT			
pH Meter	Hydrolab	Serial Number	R41906
Temperature Meter		Serial Number	
Turbidity Meter		Serial Number	
Spec. Elec. Cond. Meter		Serial Number	
ORP Meter		Serial Number	
D.O. Meter		Serial Number	
Interface Probs	Solinst	Serial Number	27582
PID/OVA	MiniRAE 2000	Serial Number	00342
Pump	Geopump	Serial Number	A99001902
Filter Apparatus	N/A		
		Number of Bottles	5
		Field Notebook	GWg.88
		Sample Method	LOW-FLOW
		Discharge Water Contaminized	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

## LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

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Date 4-27-05

Well Name <b>W95C-3</b>	Screen Interval <b>31.5-34.5</b>	
Project <b>WATS Opt - Building 88</b>	Station Elevation <b>- GND - TOC -</b>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project No. <b>1000 0868 0711 62000</b>	Static Water Level (from TOC) / Time <b>9.10 9.10 9.10</b>	
Well Location <b>West-Side MFA</b>	Average Water Level (from TOC) <b>9.10 P1125</b>	
Sample Date <b>4-27-05</b>	Reference Point <b>TOC</b>	PID Readings (background) <b>0.0</b>
Sampling Personnel <b>B. Bartelma M. Ramos</b>	Reference Elevation <b>-</b>	PID Reading (TOC) <b>0.0</b>
	Static Elevation <b>-</b>	Notes <b>-</b>
	Well Depth MEAS <b>34.15</b> RPTD <b>-</b>	Feet of Water <b>-</b>
Sample ID <b>86-EE-113</b>	Depth of Bottom of Tubing <b>32.5</b>	
Duplicate ID	Depth to Water (w/ Tubing in Well) <b>9.11</b>	

## PURGING

[illegible]

**Notes:**

1. Purge rate = 0.2 - 0.5 l/minute
2. Drawdown shall be  $\leq 0.33$  foot

### SAMPLE PARAMETERS

VOCs	EPA 300/310	EPA 6010B						
SAMPLE RATE								
0.2	0.3	0.3						

## Notes

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well.

Remarks:

## FIELD EQUIPMENT

pH Meter	Hydrolab	Serial Number	R41906	Number of Bottles	5
Temperature Meter		Serial Number			
Turbidity Meter		Serial Number			
Spec. Elec. Cond. Meter		Serial Number		Field Notebook	Bldg 88
ORP Meter		Serial Number		Sample Method	Low-Flow
D.O. Meter		Serial Number			
Interface Probe	Solinst	Serial Number	A7582		
PID/OVA	MiniRAE 2000	Serial Number	00342		
Pump	Geacump	Serial Number	A99001962		
Filter Apparatus	N/A			Discharge Water Containerized	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

## LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

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Date 4-27-05

Well Name	W9-23	Screen Interval	8-18	Immiscible Phases Present	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project	WATS Opt - Building 88	Station Elevation	- GND - TOC -		
Project No.	1990.0868.0711.62000	Static Water Level (from TOC) / Time	6:10 6:40		6:40
Well Location	West-Side MFA	Average Water Level (from TOC)	6:40 6:130		
Sample Date	4-27-05	Reference Point	TOC	PID Readings (background)	0.0
Sampling Personnel	B. Bartelma M. Kamis	Reference Elevation	-	PID Reading (TOC)	0.0
		Static Elevation	-	Notes	-
		Well Depth MEAS	17:30 RPTD -	Feet of Water	-
Sample ID	86-EE-112	Depth of Bottom of Tubing	13.0		
Duplicate ID		Depth to Water (w/ Tubing in Well)	6:41		

[illegible]

## Notes

1. Purge rate = 0.2 - 0.5 L/minute
2. Drawdown shall be <0.33 foot

### SAMPLE PARAMETERS

VOCs	EPA 300.31C	EPA 6010B					
------	-------------	-----------	--	--	--	--	--

**SAMPLE RATE**

0.2	0.3	0.3					
-----	-----	-----	--	--	--	--	--

## Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: Near drawdown exceedance

Remarks:

## FIELD EQUIPMENT

pH Meter	Hydrolab	Serial Number	R41906	Number of Bottles	5
Temperature Meter		Serial Number			
Turbidity Meter		Serial Number			
Spec. Elec. Cond. Meter		Serial Number		Field Notebook	Rdg. 88
ORP Meter		Serial Number		Sample Method	Low Flow
D.O. Meter		Serial Number			
Interface Probe	Solinst	Serial Number	Solinst 37582		
PID/OVA	Mini RAE 3000	Serial Number	26312		
Pump	Geopump	Serial Number	A99001962		
Filter Apparatus	N/A			Discharge Water Contaminized	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



TETRA TECH FW, INC.

LOW-FLOW GROUNDWATER  
SAMPLING DATA SHEET

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Date 4-27-05

Well Name W29-3  
 Project WATS Opt. Building 88  
 Project No. 1990.0850.0711.62000  
 Well Location West-Side MFA  
 Sample Date 4-28-05  
 Sampling Personnel P. Bartelma  
M. Ramps  
 Sample ID 86-W0PT-108  
 Duplicate ID 86-W0PT-109

Screen Interval 10-20  
 Station Elevation - GND - TOC - Immiscible Phases Present ☐ Yes ☒ No  
 Static Water Level (from TOC) / Time 9.20 9.20  
 Average Water Level (from TOC) 9.20 0 11.90  
 Reference Point TOC PID Readings (background) 0.0  
 Reference Elevation - PID Reading (TOC) 0.0  
 Static Elevation - Notes -  
 Well Depth MEAS 19.35 RPTD - Feet of Water -  
 Depth of Bottom of Tubing 15  
 Depth to Water (w/ Tubing in Well) 8.80

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
0748	0.2	0.73	8.76	6	21.15	1229	0.9	0.25	-	-	8.80	-
0751	0.2	0.26	8.77	1	21.27	1233	0.8	0.50	-	-	8.80	-
0754	0.2	0.18	8.72	-2	21.35	1234	2.9	0.75	-	-	8.80	-
0757	0.2	0.10	8.75	-5	21.42	1236	2.5	1.0	-	-	8.80	-
0800	0.2	0.12	8.72	-4	21.43	1235	2.1	1.25	-	-	8.80	-
0805	Collect	Sample										
0810	Collect	Duplicate										

## Notes:

1. Purge rate = 0.2 - 0.5 L/minute  
 2. Drawdown shall be <0.33 foot

## SAMPLE PARAMETERS

VOCs EPA 30C/210-1 EPA 601A

## SAMPLE RATE

0.2 0.3 0.3

## Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute  
 2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: \_\_\_\_\_

Remarks: \_\_\_\_\_

## FIELD EQUIPMENT

pH Meter Hydrolab  
 Temperature Meter   
 Turbidity Meter   
 Spec. Elec. Cond. Meter   
 ORP Meter   
 D.O. Meter   
 Interface Probe Selinst  
 PID/OVA MiniRAE 2000  
 Pump Geopump  
 Filter Apparatus N/A

Serial Number R41906  
 Serial Number   
 Serial Number   
 Serial Number   
 Serial Number   
 Serial Number 27582  
 Serial Number 60342  
 Serial Number A9901962

Number of Bottles 8  
 Field Notebook BLK 88  
 Sample Method LOW-FLOW  
 Discharge Water Contained ☒ Yes ☐ No





## LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

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Date 4-27-05

Well Name	W9-46	Screen interval	17-27
Project	WATS Opt - Building 88	Station Elevation	- GND - TOC -
Project No.	1800.085B.0711.62000	Immiscible Phases Present	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Well Location	West-Side MFA	Static Water Level (from TOC) / Time	4.90 4.90 4.90
Sample Date	4-27-05	Average Water Level (from TOC)	4.90 @ 12.55
Sampling Personnel	B. Bartelma	Reference Point	TOC
	M. Ramos	PID Readings (background)	0.0
Sample ID	86-WOPT-116	Reference Elevation	-
Duplicate ID		PID Reading (TOC)	0.0
		Static Elevation	-
		Notes	-
		Well Depth MEAS	28.00 RPTD -
		Feet of Water	
		Depth of Bottom of Tubing	22
		Depth to Water (w/ Tubing in Well)	4.20

## PURGING

[illegible]

## Notes

1 Purge rate = 0.2 - 0.5 L/minute

2 Drawdown shall be  $<0.33$  feet

### SAMPLE PARAMETERS

VOCs		EPA 300-0310 EPA 60108						
SAMPLE RATE								
0.2		0.3		0.3				

**Notes:**

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute

2. Sample rate for non-VOCs analysis = purge rate  $\approx 0.2 - 0.5$  L/minute

Condition of Well:

Remarks:

## FIELD EQUIPMENT

pH Meter	Hydrolab	Serial Number	R41906	Number of Bottles	5
Temperature Meter		Serial Number			
Turbidity Meter		Serial Number			
Spec. Elec. Cond. Meter		Serial Number		Field Notebook	Building 88
ORP Meter		Serial Number		Sample Method	
D.O. Meter		Serial Number			
Interface Probe	Solinst	Serial Number	27582		
PID/DOA	MiniRAE 2000	Serial Number	00242		
Pump	600mm P	Serial Number	A99001912		
Filter Apparatus	N/A				
				Discharge Water Containerized	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Discharge Water Containerized ☒ Yes ☐ No

## LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

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Date 4-27-05

Well Name	WLC-1	Screen Interval	19-24
Project	WATS Opt - Building 88	Station Elevation	- GND - TOC -
Project No	1990 0868.0711.62000	Immiscible Phases Present	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Well Location	West Side MFA	Static Water Level (from TOC) / Time	6.60 6.60 6.60
Sample Date	4-28-05	Average Water Level (from TOC)	6.60 @ 1120
Sampling Personnel	B. Barthelema	Reference Point	TOC
		PID Readings (background)	0.0
		PID Reading (TOC)	0.0
		Static Elevation	Notes
		Well Depth MEAS	24.00 RPTD -
Sample ID	86-WOPT-115	Depth of Bottom of Tubing	21.5
Duplicate ID		Depth to Water (w/ Tubing in Well)	6.60
		Feet of Water	

## PURGING

[illegible]

## Notes

1. Purge rate = 0.2 - 0.5 L/minute
2. Drawdown shall be <0.33 foot

### SAMPLE PARAMETERS

VOLs	EPA 300/210-1	EPA 6010B						
SAMPLE RATE								
0.2	0.3	0.3						

**Notes:**

2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well:

Remarks:

## FIELD EQUIPMENT

pH Meter	Hydrolab	Serial Number	R41906	Number of Bottles	5
Temperature Meter		Serial Number			
Turbidity Meter		Serial Number			
Spec. Elec. Cond. Meter		Serial Number		Field Notebook	Bldg. 88
ORP Meter		Serial Number			
D.O. Meter		Serial Number		Sample Method	
Interface Probe	Solinst	Serial Number	27582		LOW-FLOW
PID/OVA	Marinova	Serial Number	06342		
Pump	GeoPump	Serial Number	A99061962		
Filter Apparatus	N/A			Discharge Water Containerized	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



TETRA TECH FW, INC.

LOW-FLOW GROUNDWATER  
SAMPLING DATA SHEET

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Date 4-27-05

Well Name <u>W29-4</u>	Screen Interval <u>9-19</u>
Project <u>WATS Opt - Building 88</u>	Station Elevation <u>—</u> GND <u>—</u> TOC <u>—</u> Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project No. <u>1990.066B.0711.62000</u>	Static Water Level (from TOC) / Time <u>8.55</u> <u>8.55</u> <u>8.55</u>
Well Location <u>West-Side MFA</u>	Average Water Level (from TOC) <u>8.55 @ 1134</u>
Sample Date <u>4-28-05</u>	Reference Point <u>TOC</u> PID Readings (background) <u>0.0</u>
Sampling Personnel <u>B. Portelma</u>	Reference Elevation <u>—</u> FID Reading (TOC) <u>0.0</u>
<u>M. Ramos</u>	Static Elevation <u>—</u> Notes <u>—</u>
Sample ID <u>86-WOPT-111</u>	Well Depth MEAS <u>18.50</u> RPTD <u>—</u> Feet of Water <u>—</u>
Duplicate ID <u>—</u>	Depth of Bottom of Tubing <u>14</u>
	Depth to Water (w/ Tubing in Well) <u>8.50</u>

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
0827	0.2	1.91	8.33	88	21.28	924.2	0.5	0.25	—	—	8.50	—
0830	0.2	0.80	8.30	82	21.21	924.1	0.2	0.50	—	—	8.50	—
0833	0.2	0.62	8.79	81	21.23	927.7	0.1	0.75	—	—	8.50	—
0836	0.2	0.40	8.80	78	21.30	926.9	0.5	1.00	—	—	8.50	—
0839	0.2	0.36	8.79	80	21.29	927.6	0.9	1.25	—	—	8.50	—
0842	0.2	0.33	8.79	78	21.28	926.5	0.8	1.50	—	—	8.50	—
0845	Collect	Sample										

Notes:

1. Purge rate = 0.2 - 0.5 L/minute

2. Drawdown shall be &lt;0.33 foot

## SAMPLE PARAMETERS

VOCs	EPA 300.1316.1	EPA 1516B										
------	----------------	-----------	--	--	--	--	--	--	--	--	--	--

## SAMPLE RATE

0.2	0.3	0.3										
-----	-----	-----	--	--	--	--	--	--	--	--	--	--

Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute

2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well: Collect MS/MSD

Remarks: \_\_\_\_\_

## FIELD EQUIPMENT

pH Meter <u>Hydrolab</u>	Serial Number <u>R41906</u>	Number of Bottles <u>15</u>
Temperature Meter <u>—</u>	Serial Number <u>—</u>	
Turbidity Meter <u>—</u>	Serial Number <u>—</u>	
Spec. Elec. Cond. Meter <u>—</u>	Serial Number <u>—</u>	
ORP Meter <u>—</u>	Serial Number <u>—</u>	
D.O. Meter <u>—</u>	Serial Number <u>—</u>	
Interface Probe <u>Solinst</u>	Serial Number <u>27582</u>	Field Notebook <u>Bldg-88</u>
PID/OVA <u>MiniRAE 240</u>	Serial Number <u>C0342</u>	Sample Method <u>Low-Flow</u>
Pump <u>Beepump</u>	Serial Number <u>A99001962</u>	
Filter Apparatus <u>n/a</u>		
		Discharge Water Containerized <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



TETRA TECH FW, INC.

LOW-FLOW GROUNDWATER  
SAMPLING DATA SHEET

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Date 4-27-05

Well Name <u>W9-15</u>	Screen Interval <u>87-97</u>	Station Elevation <u>---</u> GND <u>---</u> TOC <u>---</u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>WATS Ool - Building 88</u>	Static Water Level (from TOC) / Time <u>4.85</u> <u>4.85</u> <u>4.85</u>	Average Water Level (from TOC) <u>4.85 @ 11:18</u>	
Project No. <u>1990.036B.0711.0200D</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0.0</u>	
Well Location <u>West Side MFA</u>	Reference Elevation <u>---</u>	PID Reading (TOC) <u>0.0</u>	
Sample Date <u>4-28-05</u>	Static Elevation <u>---</u>	Notes <u>---</u>	
Sampling Personnel <u>B. Bartelma</u>	Well Depth MEAS <u>98.00</u> RPTD <u>---</u>	Feet of Water <u>---</u>	
<u>M. RAMOS</u>	Depth of Bottom of Tubing <u>92</u>		
Sample ID <u>86-WOT-119</u>	Depth to Water (w/ Tubing in Well) <u>5.00</u>		
Duplicate ID <u>---</u>			

## PURGING

Time	Discharge Rate <sup>1</sup> (L/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp. (°C)	Specific Conduct. (µmhos/cm at °C)	Turbidity (NTU)	Cumulative Volume of Water Removed/Purged (Gallons)	PID/OVA Reading		Depth to Water <sup>2</sup> (ft)	Comments
									Location	Value		
0913	0.2	0.85	9.95	-101	20.02	522.9	15.9	0.25	---	---	5.05	---
0916	0.2	0.78	10.03	-119	19.87	514.0	8.5	0.50	---	---	5.09	---
0919	0.2	0.32	9.92	-133	19.84	501.5	8.9	0.75	---	---	5.13	---
0922	0.2	0.24	10.02	-143	19.97	503.1	8.2	1.00	---	---	5.03	---
0925	0.2	0.21	10.01	-148	20.18	502.9	7.8	1.25	---	---	4.95	---
0928	0.2	0.18	9.99	-150	20.30	504.1	7.1	1.50	---	---	4.95	---
0930	Collect Sample											

Notes:

1. Purge rate = 0.2 - 0.5 L/min

2. Drawdown shall be &lt; 0.33 foot

## SAMPLE PARAMETERS

VOCs FEPA 300/310/1 EPA 6010B

## SAMPLE RATE

0.2 0.3 0.3

Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/min

2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/min

Condition of Well: Drawdown Problems in beginning

Remarks:

## FIELD EQUIPMENT

pH Meter <u>Hydrolab</u>	Serial Number <u>R41906</u>	Number of Bottles <u>5</u>
Temperature Meter <u>---</u>	Serial Number <u>---</u>	
Turbidity Meter <u>---</u>	Serial Number <u>---</u>	
Spec. Elec. Cond. Meter <u>---</u>	Serial Number <u>---</u>	Field Notebook <u>Bldg 88</u>
ORP Meter <u>---</u>	Serial Number <u>---</u>	Sample Method <u>Low-Flow</u>
D.O. Meter <u>---</u>	Serial Number <u>---</u>	
Interface Probe <u>Solinst</u>	Serial Number <u>07582</u>	
PID/OVA <u>MnirAE 2000</u>	Serial Number <u>00342</u>	
Pump <u>600PMP</u>	Serial Number <u>A9900 1962</u>	
Filter Apparatus <u>N/A</u>		Discharge Water Containerized <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

## LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

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Date 4-27-05

Well Name <u>W9SC-15</u>	Screen Interval <u>30-33</u>	Station Elevation <u>-</u> GND <u>-</u> TOC <u>-</u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>WATS Opt - Building 88</u>	Static Water Level (from TOC) / Time <u>5.09</u>	Average Water Level (from TOC) <u>5.09 @ 1113</u>	
Project No. <u>1990.0868.0711.62000</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0.0</u>	
Well Location <u>West-Side MFA</u>	Reference Elevation <u>-</u>	PID Reading (TOC) <u>0.0</u>	
Sample Date <u>4-27-05</u>	Static Elevation <u>-</u>	Notes <u>-</u>	
Sampling Personnel <u>B. Bartelma</u>	Well Depth MEAS <u>32.90</u> RPTD <u>-</u>	Feet of Water <u>-</u>	
<u>M. Ramos</u>	Depth of Bottom of Tubing <u>31.0</u>		
Sample ID <u>86-EE-117</u>	Depth to Water (w/ Tubing in Well) <u>5.09</u>		
Duplicate ID			

[illegible]

## Notes

1. Purge rate = 0.2 - 0.5 L/min/ft
2. Drawdown shall be <0.33 foot

### SAMPLE PARAMETERS

VOCs	EPA 300/310	EPA 6010B				
------	-------------	-----------	--	--	--	--

**SAMPLE RATE**

0.2	0.3	0.3					
-----	-----	-----	--	--	--	--	--

**Notes:**

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well:

Remarks.

## FIELD EQUIPMENT

pH Meter	Hydrolab	Serial Number	R41906	Number of Bottles	5
Temperature Meter		Serial Number			
Turbidity Meter		Serial Number			
Spec. Elec. Cond. Meter		Serial Number		Field Notebook	Bldg 88
ORP Meter		Serial Number		Sample Method	Low-Flow
D.O. Meter		Serial Number			
Interface Probe	Solinst	Serial Number	27582		
PID/OVA	MiniRAE2000	Serial Number	00372		
Pump	bed pump	Serial Number	A99001962		
Filter Apparatus					
				Discharge Water Containerized	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Discharge Water Containerized ☒ Yes ☐ No

## LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Page \_\_\_\_\_ of \_\_\_\_\_

Date 4-27-05

Well Name	W9-12	Screen Interval	85-95	Station Elevation	- GND - TOC -	Immiscible Phases Present	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project	WATS Opt-Building 58	Static Water Level (from TOC) / Time	5.20 1108			408 5.20	5.20 1108
Project No.	1990.066B.0711.82000	Average Water Level (from TOC)				5.20 8.20	0 1108
Well Location	West-Side MFA	Reference Point	TOC	PID Readings (background)		0.0	
Sample Date	4-27-05	Reference Elevation	-	PID Reading (TOC)		0.0	
Sampling Personnel	B. Baytelma M. Ramos	Static Elevation	-	Notes		-	
		Well Depth MEAS	95.80	RPTD	-	Feet of Water	-
Sample ID	86-WAPT-120	Depth of Bottom of Tubing	90.0				
Duplicate ID		Depth to Water (w/ Tubing in Well)				5.20	

## PURGING

[illegible]

**NORME:**

1. Purge rate = 0.2 - 0.5 L/minute
2. Drawdown shall be  $\leq 0.33$  foot

### SAMPLE PARAMETERS

VOCs	EPA 300/310	EPA 60108				
------	-------------	-----------	--	--	--	--

**SAMPLE RATE**

0.2	0.3	0.3					
-----	-----	-----	--	--	--	--	--

**Notes:**

2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well:

Remarks:

## FIELD EQUIPMENT

pH Meter	Hydrolab	Serial Number	R47906	Number of Bottles	5
Temperature Meter		Serial Number			
Turbidity Meter		Serial Number			
Spec. Elec. Cond. Meter		Serial Number		Field Notebook	Bldg 88
ORP Meter		Serial Number			
D.O. Meter		Serial Number		Sample Method	
Interface Probe	Solinst	Serial Number	27582		Low-Flow
PID/OVA	MiniRAE 2000	Serial Number	00342		
Pump	Geopump	Serial Number	A97001962		
Filter Apparatus	N/A			Discharge Water Contaminized	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

## LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Page \_\_\_\_\_ of \_\_\_\_\_

Date 4-27-05

Well Name <u>W9-6</u>	Screen Interval <u>15-20</u>	
Project <u>WATS Opt - Building 88</u>	Station Elevation <u>- GND - TOC -</u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project No. <u>1890.0958.0711.82000</u>	Static Water Level (from TOC) / Time <u>8.53</u>	<u>8.53</u>
Well Location <u>West-Side MFA</u>	Average Water Level (from TOC) <u>8.53 @ 1137</u>	<u>8.53</u>
Sample Date <u>4-28-05</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0.0</u>
Sampling Personnel <u>B. Bartelma</u>	Reference Elevation <u>-</u>	PID Reading (TOC) <u>0.0</u>
<u>M. Rames</u>	Static Elevation <u>-</u>	Notes <u>-</u>
	Well Depth MEAS <u>25.10</u> RPTD <u>-</u>	Feet of Water <u>-</u>
Sample ID <u>86-WBPT-110</u>	Depth of Bottom of Tubing <u>20</u>	
Duplicate ID <u>-</u>	Depth to Water (w/ Tubing in Well) <u>8.55</u>	

## PURGING

[illegible]

Notes:

1. Purge rate = 0.2 - 0.5 L/minute
2. Drawdown shall be  $\leq 0.33$  foot

### SAMPLE PARAMETERS

VOCs	EPA 300	310.1	EPA 6010B				
------	---------	-------	-----------	--	--	--	--

**SAMPLE RATE**

0.2	0.3	0.3					
-----	-----	-----	--	--	--	--	--

Notes:

1. Sample rate for VOCs analysis = 0,1 - 0,2 L/minute
2. Sample rate for non-VOCs analysis = purge rate = 0,2 - 0,5 L/minute

Condition of Well:

Remarks:

### FIELD EQUIPMENT

pH Meter	Hydrolab	Serial Number	R4906	Number of Bottles	5
Temperature Meter	↓	Serial Number	↓		
Turbidity Meter		Serial Number			
Spec. Elec. Cond. Meter		Serial Number		Field Notebook	Bldg 88
ORP Meter		Serial Number			
D.O. Meter	Solixact	Serial Number	27582	Sample Method	Low-Flow
Interface Probe		Serial Number			
PiD/OVA		Serial Number		00342	
Pump		Serial Number		A99001982	
Filter Apparatus	N/A				
			Discharge Water Containerized	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No

## LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Page \_\_\_\_ of \_\_\_\_

Date 4-27-05

Well Name <u>5182</u>	Screen Interval <u>92-97</u>	Station Elevation <u>-</u> GND <u>-</u> TOC <u>-</u>	Immisable Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project <u>WATS Opt - Building 88</u>	Static Water Level (from TOC) / Time <u>5.40</u> <u>5.40</u>	Average Water Level (from TOC) <u>5.40 @ 11.64</u>	
Project No. <u>1993.0868.0711.62000</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0.0</u>	
Well Location <u>West-Side MFA</u>	Reference Elevation <u>-</u>	PID Reading (TOC) <u>0.0</u>	
Sample Date <u>4-27-05</u>	Static Elevation <u>-</u>	Notes <u>-</u>	
Sampling Personnel <u>B. Barthelema</u> <u>M. Ramos</u>	Well Depth MEAS <u>97.65</u> RPTD <u>-</u>	Feet of Water <u>-</u>	
Sample ID <u>86-WOPT-121</u>	Depth of Bottom of Tubing <u>95</u>	Depth to Water (w/ Tubing in Well) <u>5.40</u>	
Duplicate ID <u>-</u>			

[illegible]

### Notes

1. Purge rate = 0.2 - 0.5 L/minute
2. Orowdown shall be <0.33 fpo!

### SAMPLE PARAMETERS

VOCs	EPA 3000	3100	EPA 6010B					
------	----------	------	-----------	--	--	--	--	--

**SAMPLE RATE**

0.2	0.3	0.3					
-----	-----	-----	--	--	--	--	--

## Notes:

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.6 L/minute

Condition of Well. Silt in well bottom

Remarks:

## FIELD EQUIPMENT

pH Meter	Hydrolab	Serial Number	R41906	Number of Bottles	5
Temperature Meter	↓	Serial Number	↓		
Turbidity Meter		Serial Number			
Spec. Elec. Cond. Meter		Serial Number		Field Notebook	Bldg. 88
ORP Meter	↓	Serial Number	↓		
D.O. Meter		Serial Number		Sample Method	
Interface Probe	Solinst	Serial Number	21582		Low-Flow
PID/OVA	Munt. RAE 2000	Serial Number	00342		
Pump	Grpump	Serial Number	A99001962		
Filter Apparatus	N/A			Discharge Water Containerized	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Discharge Water Containerized ☒ Yes ☐ No



## LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Page \_\_\_\_\_ of \_\_\_\_\_

Date 4-27-05

Well Name	14D30H	Screen Interval	6.5-16.5	Station Elevation	GND	TOC	Immiscible Phases Present	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project	WATS Opt - Building 88	Static Water Level (from TOC) / Time	6.6c	6.6c	6.6c			
Project No	1990.0868.07.11.62000	Average Water Level (from TOC)	6.6c	1154				
Well Location	West Side MFA	Reference Point	TOC	PID Readings (background)	0.0			
Sample Date	4-28-05	Reference Elevation		PID Reading (TOC)	0.0			
Sampling Personnel	B. Bartheima	Static Elevation		Notes				
	M. Ramos	Well Depth MEAS		RPTD				
Sample ID	86-WOPT-106	Depth of Bottom of Tubing	11.5					
Duplicate ID	86-WOPT-107	Depth to Water (w/ Tubing in Well)	6.55					

## PURGING

[illegible]

## Notes

1. Purge rate = 0.2 - 0.5 L/minute
2. Crawdown shall be <0.33 foot

### SAMPLE PARAMETERS

VOCs	EPA 300/310.1	EPA 6010.B					
------	---------------	------------	--	--	--	--	--

**SAMPLE RATE**

0.2	0.3	0.3					
-----	-----	-----	--	--	--	--	--

## Notes

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well:

Remarks:

## FIELD EQUIPMENT

pH Meter	HydroLab	Serial Number	R41906	Number of Bottles	8
Temperature Meter		Serial Number	↓		
Turbidity Meter		Serial Number			
Spec. Elec. Cond. Meter		Serial Number		Field Notebook	Bldg 88
ORP Meter		Serial Number	↓		
D.O. Meter		Serial Number		Sample Method	LOW-FLOW
Interface Probe	Soliast	Serial Number	27582		
PID/OVA	Mini RAE 3000	Serial Number	00342		
Pump	Geopump	Serial Number	A99001962		
Filter Apparatus	N/A			Discharge Water Containerized	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Discharge Water Containerized	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
-------------------------------	---	-----------------------------

## LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Page \_\_\_\_\_ of \_\_\_\_\_

Date 4-27-05

Well Name <u>4D29A</u>	Screen Interval <u>8-18</u>	
Project <u>WATS Opt - Building 88</u>	Station Elevation <u>—</u> GND <u>—</u> TOC <u>—</u>	Immiscible Phases Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project No. <u>1990.086B.0711.6200</u>	Static Water Level (from TOC) / Time <u>9.20</u>	<u>9.20</u>
Well Location <u>West-Side MFA</u>	Average Water Level (from TOC) <u>9.20</u>	<u>01204</u>
Sample Date <u>4-28-05</u>	Reference Point <u>TOC</u>	PID Readings (background) <u>0.0</u>
Sampling Personnel <u>B. Bartelma</u>	Reference Elevation <u>—</u>	PID Reading (TOC) <u>0.0</u>
<u>M. RAMOS</u>	Static Elevation <u>—</u>	Notes <u>—</u>
	Well Depth MEAS <u>17.95</u> RPTD <u>—</u>	Feet of Water <u>—</u>
Sample ID <u>86-WDPT-165</u>	Depth of Bottom of Tubing <u>13</u>	
Duplicate ID <u>—</u>	Depth to Water (w/ Tubing in Well) <u>9.20</u>	

## PURGING

[illegible]

## Notes:

1. Purge rate = 0.2 - 0.5 L/min/ft
2. Crawdown shall be  $\leq 0.33$  ft/s

### SAMPLE PARAMETERS

VOCs	EPA 300/310.1	EPA 6010B				
------	---------------	-----------	--	--	--	--

**SAMPLE RATE**

0.2	0.3	0.3					
-----	-----	-----	--	--	--	--	--

## Notes

1. Sample rate for VOCs analysis = 0.1 - 0.2 L/minute
2. Sample rate for non-VOCs analysis = purge rate = 0.2 - 0.5 L/minute

Condition of Well:

Remarks:

## FIELD EQUIPMENT

pH Meter	Hydrolab	Serial Number	R41906	Number of Bottles	5
Temperature Meter		Serial Number			
Turbidity Meter		Serial Number			
Spec. Elec. Cond. Meter		Serial Number		Field Notebook	B12g-88
ORP Meter		Serial Number			
D.O. Meter		Serial Number		Sample Method	
Interface Probe	Solinst	Serial Number	27582		Low-Flow
PID/OVA	MiniRAE 2000	Serial Number	00342		
Pump	Geopump	Serial Number	A99001962		
Filter Apparatus	N/A			Discharge Water Contaminated	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

**APPENDIX G**

**QUALITY ASSURANCE/  
QUALITY CONTROL REPORT**

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Base Realignment and Closure  
Program Management Office West  
1455 Frazee Road, Suite 900  
San Diego, California 92108-4310

CONTRACT No. N68711-98-D-5713  
CTO No. 0086

**APPENDIX G**  
**QUALITY ASSURANCE/QUALITY CONTROL REPORT**  
**July 21, 2006**

**DRAFT FORMER BUILDING 88 INVESTIGATION REPORT**  
**FORMER NAVAL AIR STATION MOFFETT FIELD**  
**MOFFETT FIELD, CALIFORNIA**

**DCN: FWSD-RAC-06-0206**



**TETRA TECH EC, INC.**

1230 Columbia Street, Suite 500  
San Diego, CA 92101



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## ABBREVIATIONS AND ACRONYMS

%D	percent difference
%R	percent recovery
bgs	below ground surface
CA	California
cis-1,2-DCE	cis-1,2-dichloroethene
DoD	Department of Defense
EPA	U.S. Environmental Protection Agency
FWENC	Foster Wheeler Environmental Corporation
MS/MSD	matrix spike/matrix spike duplicate
N/A	not applicable
ND	not detected
PCE	tetrachloroethane
QC	quality control
RPD	relative percent difference
RSD	relative standard deviation
TCE	trichloroethene
TOC	total organic carbon
TtFW	Tetra Tech FW, Inc.
VOC	volatile organic compound

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## 1.0 INTRODUCTION

All samples from the Building 88 sampling event were collected and handled in accordance with the procedures detailed in Appendix E, Sampling and Analysis Plan of the *Final West-Side Aquifers Treatment System Optimization Work Plan* (Foster Wheeler Environmental Corporation [FWENC], 2003), and Appendix A, Sampling and Analysis Plan Addendum of the *Final West-Side Aquifers Treatment System Optimization Work Plan Addendum 1* [Tetra Tech FW, Inc. (TtFW), 2005]. The chain-of-custody records, laboratory reports, and data validation reports from the Building 88 investigation are included in Appendix B.

Soil and water samples were analyzed by Agriculture & Priority Pollutants Laboratories, Inc., a state of California-certified and Navy-evaluated laboratory. Soil gas samples were analyzed in the field by Transglobal Environmental Geochemistry. A third-party validation company, Laboratory Data Consultants, Inc., performed U.S. Environmental Protection Agency (EPA) Level III-equivalent or Level IV-equivalent data validation of all samples, except for soil gas samples, which were analyzed by a mobile laboratory and did not require third-party validation. The validation was conducted in accordance with the EPA Contract Laboratory Program *National Functional Guidelines For Organic Data Review* (EPA, 1999), the EPA Contract Laboratory Program *National Functional Guidelines for Inorganic Data Review* (EPA, 2004), the Department of Defense (DoD) *Quality Systems Manual for Environmental Laboratories* (DoD, 2002), and the criteria specified in the *Final West-Side Aquifers Treatment System Optimization Work Plan Sampling and Analysis Plan* (FWENC, 2003) and *Final West-Side Aquifers Treatment System Optimization Work Plan Addendum 1* (TtFW, 2005). Twenty percent of the total number of samples were validated in accordance with an EPA Level IV-equivalent protocol, and the remainder of the samples were validated in accordance with an EPA Level III-equivalent protocol.

### 1.1 FIELD QUALITY CONTROL SAMPLING OBJECTIVES

Ninety-four field quality control (QC) samples were required and 96 field QC samples were collected. Table G.1-1 lists the required QC samples. Field QC sampling objectives were met per the *Final West-Side Aquifers Treatment System Optimization Work Plan Sampling and Analysis Plan* (FWENC, 2003). The following sections describe the results of the field QC sampling for the Building 88 sampling.

#### 1.1.1 Field Duplicates

Field duplicates consist of two samples (an original and a duplicate) of the same matrix collected at the same time and location, to the extent possible, using the same sampling technique. The purpose of the field duplicate is to evaluate the precision of the overall sample collection and

analysis process through the calculation of the relative percent difference (RPD) for duplicate pairs. Field duplicates were collected at a frequency of 1 per every 10 samples and were analyzed for the same parameters as the original sample. Field duplicates were not required for soil samples due to matrix inhomogeneity. The RPD QC limit is 25 percent. Duplicate pairs that contain low-contaminant concentrations can produce even greater variation, leading to RPD outliers when the values are not significantly different. RPD values are non-representative when the following exist:

- Both the original and duplicate results are less than five times the laboratory reporting limit (not detected [ND])
- One or both results are qualified as estimated, rejected, or are a blank contaminant
- One or both results are ND at the laboratory reporting limit

Three field duplicate pairs were collected for vapor sample matrix and identified in summary Table G.1-1. All RPD values for vapor samples were less than 25 percent, which is considered acceptable.

Twenty-three groundwater field duplicate pairs were collected and identified in Table G.1-1. The field duplicate sample frequency was met per the Sampling and Analysis Plan requirement in the *Final West-Side Aquifers Treatment System Optimization Work Plan* (FWENC, 2003). Generally the RPD values for the volatile organic compounds (VOCs), anions, and cations analysis could not be calculated (pairs with ND results) or were greater than 25 percent. Results were qualified with a "J" (estimated) as a result of field duplicate RPDs outside of QC limits.

### 1.1.2 Trip Blanks

Trip blanks are prepared by the laboratory, carried into the field, and stored with soil or water samples for VOC analysis. Trip blanks are used to determine if samples have been cross-contaminated with VOCs during sample collection and transportation to the laboratory. Trip blanks were provided in each cooler, which contained soil or water samples for VOC analysis. A total of 31 trip blank samples were transported with VOC samples to the laboratory.

Acetone and methylene chloride are common laboratory contaminants. Acetone and methylene chloride were detected in most of the associated method blanks and therefore, are suspected to come from the laboratory environment. Trip blanks where trichloroethene (TCE) and tetrachloroethene (PCE) were detected may be caused by carry over from samples with high concentration during analysis or from field samples during transport. Since the cause for TCE and PCE detection in the trip blanks cannot be determined, samples that traveled with affected trip blanks were qualified "J" when TCE or PCE concentrations are less than five times the reported concentrations in the trip blank. If TCE or PCE concentration were greater than five times the concentration found in trip blanks, associated samples were not qualified. Table G.1-2 lists qualified associated samples.

### 1.1.3 Matrix Spike and Matrix Spike Duplicate

Matrix spike and matrix spike duplicate (MS/MSD) samples are prepared by spiking the sample with a known amount of a target analyte. Once the spike is added to the MS/MSD sample, the sample is carried through the complete sample preparation process along with the other samples in the batch. The percent recoveries (%R) for the MS/MSD samples are compared against each other and against the known amount of the spike to measure the accuracy of the analytical method. RPD values from the MS/MSD samples are calculated to evaluate the analytical precision of the method. One MS/MSD sample was collected for every 20 soil or groundwater samples.

Ten MS/MSD samples were collected for the soil matrix, and 11 were collected for the water matrix. The %R and RPDs were within the specified QC limits described in the Sampling and Analysis Plan in the *Final West-Side Aquifers Treatment System Optimization Work Plan* (FWENC, 2003) and *Final West-Side Aquifers Treatment System Optimization Work Plan Addendum 1* (TtFW, 2005), except for those listed in Table G.1-3.

The samples in Table G.1-3 were flagged “J/UJ” (estimated value) for the analytes listed.

### 1.1.4 Equipment Rinsate

Equipment rinsates were collected at the site by passing analyte-free, laboratory reagent-grade water of known quality through decontaminated sampling equipment during the final rinse. One rinsate was collected each day during Building 88 sampling, when disposable sampling equipment was not used. Equipment rinsate samples evaluate the effectiveness of the decontamination procedure. The equipment rinsate samples were collected and analyzed for the same analytes as the original samples. No analytes were reported at or above the reporting limits in the equipment rinsate samples, except for total organic carbon (TOC). Data are only qualified when the parameters listed in Section 1.2.1 are outside the QC limits; therefore, no associated samples were qualified.

## 1.2 ANALYTICAL LABORATORY DATA QA/QC

The following sections describe the fulfillment of the analytical data quality objectives for the Building 88 sampling event in terms of precision, accuracy, representativeness, completeness, and comparability parameters, as described in the Sampling and Analysis Plan in the *Final West-Side Aquifers Treatment System Optimization Work Plan* (FWENC, 2003) and *Final West-Side Aquifers Treatment System Optimization Work Plan Addendum 1* (TtFW, 2005).

### 1.2.1 Precision and Accuracy

In accordance with the analytical methods, the *Quality Systems Manual for Environmental Laboratories* (DoD, 2002), Sampling and Analysis Plan in the *Final West-Side Aquifers*

*Treatment System Optimization Work Plan* (FWENC, 2003) and *Final West-Side Aquifers Treatment System Optimization Work Plan Addendum 1* (TtFW, 2005) specifications, the following parameters were assessed by the third-party validation company:

- Technical holding times
- Instrument performance checks
- Initial and continuing calibration verifications
- Method blanks
- Surrogate %R
- Laboratory control samples
- Internal standards
- Target compound identification
- Compounds quantitation
- System performance

Associated samples were flagged “J/UJ” (estimated), if any of these parameters were outside QC limits.

#### **1.2.1.1 Technical Holding Times**

The groundwater sample from location CPT-88-19 at 47 to 50 feet below ground surface (bgs) did not meet the technical holding time of 48 hours. The sample was analyzed 12 days after the sample collection date. For this sample, nitrate was flagged with a “J” qualifier, and nitrite was flagged with an “R” (rejected) qualifier. A field duplicate groundwater sample collected from location CPT-88-19 at 47 to 50 feet bgs was analyzed within the required holding time. All other samples met holding times.

#### **1.2.1.2 Instrument Performance Checks**

Instrument performance checks were completed. All QC requirements were met.

#### **1.2.1.3 Initial and Continuing Calibration Verifications**

Initial and continuing calibrations were performed. Percent relative standard deviations (RSDs) of initial calibration and percent differences (%Ds) of continuing calibration did not meet the QC requirement for all samples. Associated samples were flagged “J/UJ” for all affected compounds.



#### **1.2.1.4 Method Blanks**

Some method blanks for VOCs, anions, and TOCs analysis contained one or more of the following analytes - acetone, methylene chloride, cis-1,2-dichloroethene (cis-1,2-DCE), TCE, PCE, nitrite, and/or TOC. Acetone and methylene chloride were flagged "U" (less than the laboratory reporting limit) for the associated samples, if compounds were not detected above the laboratory detection limit or if the compound concentrations were not greater than 10 times the concentrations found in the associated method blank. Cis-1,2-DCE, TCE, PCE, nitrite, and TOC are flagged "U" for associated samples, if compounds were not detected or if the compound concentrations were not greater than 5 times the concentrations found in the associated method blank. Table G.1-4 lists samples that were flagged "J/UJ" as a result of compounds found in associated method blanks.

#### **1.2.1.5 Surrogate Percent Recovery**

Surrogate recovery only applies to VOC analysis. The surrogate %Rs were outside QC limits for the following groundwater samples: location CPT-88-8 at 32 to 34 feet bgs; location CPT-88-23 at 18.5 to 20.5 feet bgs, 22 to 24 feet bgs, 26.5 to 28.5 feet bgs, and 30 to 32 feet bgs; and the diluted samples from monitoring wells 14D29A, 14D30A, 14D30A (field duplicate), W1C-1, W29-3 (field duplicate), W29-4, W9-6, W9-20, W9-23, W9-46, and W9SC-3. These samples were flagged "J" for all affected compounds. All other surrogate %Rs were within QC limits.

#### **1.2.1.6 Laboratory Control Samples**

All laboratory control samples were within QC limits.

#### **1.2.1.7 Internal Standards**

The internal standards areas and retention times were outside QC limits for soil samples collected from the following locations/depths: CC-8-3 at 9.5 to 10 feet bgs; CC-88-3 at 14 to 14.5 feet bgs; CPT-88-1 at 12.5 to 13.5 feet bgs; CPT-88-10 at 10.5 to 11.5 feet bgs; CPT-88-19 at 6 to 7 feet bgs and 11.5 to 12.5 feet bgs; CPT-88-22 at 12 to 13 feet bgs; and CPT-88-23 at 11 to 12 feet bgs, 16 to 17 feet bgs, 23 to 24 feet bgs, and 32 to 33 feet bgs. These samples were flagged "J/UJ" for compounds 4-methyl-2-pentanone and 1,1,2,2-tetrachloroethane. All other internal standards and retention times were within QC limits.

#### **1.2.1.8 Target Compound Identifications**

All target analytes were correctly identified.

### **1.2.1.9 Compounds Quantitation**

Laboratory Data Consultants, Inc. evaluated compound quantitation during Level 4 reviews. Nitrates and some VOCs were reported incorrectly by the laboratory. Corrective action was implemented, and amended reports were submitted. Amended report pages can be found in Appendix B.

### **1.2.1.10 System Performance**

System performance met all QC requirements. No discrepancies were reported.

### **1.2.2 Representativeness**

Representative data were obtained through selection of sampling sites and analytical parameters to meet the data quality objectives of this project. Proper collection and handling of samples, and the use of established field and laboratory procedures as described in the Sampling and Analysis Plan in the *Final West-Side Aquifers Treatment System Optimization Work Plan* (FWENC, 2003) and *Final West-Side Aquifers Treatment System Optimization Work Plan Addendum 1* (TtFW, 2005) were followed.

### **1.2.3 Completeness**

The percent completeness is defined as the percentage of measurements that are judged to be valid. The completeness goal is to generate a sufficient amount of valid data to meet project objectives. Completeness is calculated and reported for each method, matrix, and analyte combination. The number of valid results divided by the number of possible individual analyte results, expressed as a percentage, determines the completeness of the data set. For completeness requirements, valid results are all results not qualified with an “R” flag for rejected. The requirement for completeness is 95 percent for water samples, and 90 percent for soil samples. The HydroPunch<sup>®</sup> sample from location CPT-88-19 at 47 to 50 feet bgs did not meet the holding time requirements for nitrate and nitrite. Nitrite was flagged “R” for rejected. The percent completeness for soil is 100 percent and 99 percent for water.

### **1.2.4 Comparability**

Comparability is a qualitative parameter expressing the confidence with which one data set can be compared with another. Sample data should be comparable with other measurements for similar samples and sample conditions. The objective for the Quality Assurance/QC program is to produce data with the greatest possible degree of comparability. The number of matrices that are sampled and the range of field conditions encountered are considered in determining comparability. Comparability is achieved by using standard methods for sampling and analysis, reporting data in standard units, normalizing results to standard conditions, and using standard and comprehensive reporting formats.

### 1.3 OVERALL ASSESSMENT OF DATA

Overall, quality of data collected from the Building 88 sampling is valid and usable. Discrepancies of field and laboratory data quality are discussed in Sections 1.1 and 1.2. Most of the soil and groundwater samples for VOC analysis have high concentrations of cis-1,2-DCE, PCE, and TCE, requiring samples to be diluted. There is a large disparity in the calculated results of diluted and undiluted analyses for soil and HydroPunch<sup>®</sup> groundwater samples. A combination of factors, including varied soil compositions, internal standard recovery, matrix interference, and/or dilution factors, could help account for the variation. The higher of the two VOC concentrations (undiluted and diluted) from the soil and HydroPunch<sup>®</sup> groundwater samples was used for this report to be conservative. VOC concentrations from undiluted and diluted analysis from the groundwater monitoring well samples exhibited no significant variability between different dilutions; therefore, the concentrations from the higher dilution analysis were reported. Sulfate and metals analysis also required dilutions. However, only the diluted concentrations were reported because there was no significant variability for the two analyses.

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# FORMER BUILDING 88 INVESTIGATION REPORT

TABLE G.1-1

## FIELD QUALITY CONTROL SAMPLES FORMER NAS MOFFETT FIELD MOFFETT FIELD, CA

Field Duplicate Pairs	Trip Blanks	MS/MSD	Equipment Rinsate
86-WOPT-106/-107	86-WOPT-122	86-WOPT-111	86-WOPT-309
86-WOPT-108/-109	86-WOPT-123	86-WOPT-311	86-WOPT-329
86-WOPT-143/-144	86-WOPT-128	86-WOPT-328	86-WOPT-514
86-WOPT-218/-219	86-WOPT-129	86-WOPT-342	86-WOPT-528
86-WOPT-239/-240	86-WOPT-130	86-WOPT-522	86-WOPT-538
86-WOPT-247/-248	86-WOPT-145	86-WOPT-532	86-WOPT-560
86-WOPT-502/-503	86-WOPT-300	86-WOPT-556	86-WOPT-568
86-WOPT-518/-519	86-WOPT-310	86-WOPT-583	86-WOPT-590
86-WOPT-542/-543	86-WOPT-331	86-WOPT-597	86-WOPT-601
86-WOPT-571/-572	86-WOPT-501	86-WOPT-637	86-WOPT-630
86-WOPT-593/-594	86-WOPT-515	86-WOPT-639	86-WOPT-645
86-WOPT-608/-609	86-WOPT-540	86-WOPT-663	86-WOPT-659
86-WOPT-620/-621	86-WOPT-551	86-WOPT-667	86-WOPT-1015
86-WOPT-634/-635	86-WOPT-561	86-WOPT-1006	86-WOPT-1027
86-WOPT-650/-651	86-WOPT-569	86-WOPT-1020	86-WOPT-1040
86-WOPT-661/-662	86-WOPT-576	86-WOPT-1043	86-WOPT-1064
86-WOPT-1001/-1003	86-WOPT-591	86-WOPT-1058	86-WOPT-1075
86-WOPT-1018/-1019	86-WOPT-602	86-WOPT-1082	86-WOPT-1090
86-WOPT-1044/-1045	86-WOPT-616	86-WOPT-1097	86-WOPT-1105
86-WOPT-1055/-1056	86-WOPT-631	86-WOPT-1109	86-WOPT-1118
86-WOPT-1079/-1080	86-WOPT-646	86-WOPT-1123	86-WOPT-1135
86-WOPT-1093/-1094	86-WOPT-660	N/A	N/A
86-WOPT-1121/-1122	86-WOPT-1002	N/A	N/A
N/A	86-WOPT-1017	N/A	N/A
N/A	86-WOPT-1033	N/A	N/A
N/A	86-WOPT-1053	N/A	N/A
N/A	86-WOPT-1065	N/A	N/A
N/A	86-WOPT-1076	N/A	N/A
N/A	86-WOPT-1091	N/A	N/A
N/A	86-WOPT-1106	N/A	N/A
N/A	86-WOPT-1119	N/A	N/A

### Abbreviations and Acronyms:

CA - California

MS - matrix spike

MSD - matrix spike duplicate

N/A - not applicable

NAS - Naval Air Station

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# FORMER BUILDING 88 INVESTIGATION REPORT

TABLE G.1-2

## TRIP BLANK DETECTIONS FORMER NAS MOFFETT FIELD MOFFETT FIELD, CA

Trip Blank ID	Compound	Qualified Associated Samples
86-WOPT-1017 86-WOPT-631 86-WOPT-660 86-WOPT-646	Acetone	No associated samples were qualified.
86-WOPT-540 86-WOPT-561 86-WOPT-1033 86-WOPT-1065	Acetone, methylene chloride	No associated samples were qualified.
86-WOPT-501 86-WOPT-551	Methylene chloride	No associated samples were qualified.
86-WOPT-123 86-WOPT-515	Acetone, methylene chloride, trichloroethene	No associated samples were qualified.
86-WOPT-1076	Tetrachloroethene, trichloroethene	Only tetrachloroethene were qualified: 86-WOPT-1077, 86-WOPT-1078, 86-WOPT-1079, 86-WOPT-1080, 86-WOPT-1081, 86-WOPT-1082, 86-WOPT-1083, 86-WOPT-1087

### Abbreviations and Acronyms:

CA – California

NAS – Naval Air Station

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# FORMER BUILDING 88 INVESTIGATION REPORT

TABLE G.1-3

## SAMPLES NOT MEETING %R AND/OR RPDs FORMER NAS MOFFETT FIELD MOFFETT FIELD, CA

Sample Number	Analyte
86-WOPT-1058	1,1-Dichloroethene, sulfate, iron, potassium
86-WOPT-1082	Iron, sulfate
86-WOPT-583 86-WOPT-532 86-WOPT-597	Trichloroethene
86-WOPT-1097	Sulfate, magnesium
86-WOPT-1043	1,1-Dichloroethene, magnesium
86-WOPT-522	1,1-Dichloroethene, chlorobenzene
86-WOPT-1020	Sulfate
86-WOPT-1006	Sulfate, iron, magnesium
86-WOPT-311	Chlorobenzene, trichloroethene
86-WOPT-328	Trichloroethene
86-WOPT-1123	Sulfate, iron, potassium, sodium
86-WOPT-1109	1,1-Dichloroethene, sulfate, calcium, iron, magnesium, potassium
86-WOPT-111	Magnesium
86-WOPT-667 86-WOPT-639	1,1-Dichloroethene, benzene, chlorobenzene, toluene, trichloroethene
86-WOPT-663	Magnesium, sodium, potassium
86-WOPT-637	Trichloroethene, sulfate, magnesium, potassium, sodium

### Abbreviations and Acronyms:

%R – percent recovery  
CA – California  
NAS – Naval Air Station  
RPD – relative percent difference

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## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE G.1-4

**METHOD BLANK CONTAMINANTS SUMMARY  
FORMER NAS MOFFETT FIELD  
MOFFETT FIELD, CA**

Method Parameter	Method Blank Contaminant	Affected Soil Samples	Affected Water Samples
VOCs	Methylene Chloride	86-WOPT-653	86-WOPT-117
	Acetone	86-WOPT-654 86-WOPT-655 86-WOPT-657 86-WOPT-658	86-WOPT-122 86-WOPT-123
	Acetone	86-WOPT-656 86-WOPT-301 86-WOPT-305 86-WOPT-306 86-WOPT-307 86-WOPT-308 86-WOPT-311 86-WOPT-312 86-WOPT-313 86-WOPT-314 86-WOPT-315 86-WOPT-316 86-WOPT-317 86-WOPT-318 86-WOPT-319 86-WOPT-322 86-WOPT-323 86-WOPT-324 86-WOPT-325 86-WOPT-326 86-WOPT-327 86-WOPT-328 86-WOPT-332 86-WOPT-333 86-WOPT-334 86-WOPT-335 86-WOPT-336 86-WOPT-337 86-WOPT-341 86-WOPT-342 86-WOPT-343 86-WOPT-344 86-WOPT-345 86-WOPT-346 86-WOPT-347 86-WOPT-626	86-WOPT-631 86-WOPT-632 86-WOPT-633 86-WOPT-634 86-WOPT-635 86-WOPT-636 86-WOPT-646 86-WOPT-647 86-WOPT-648 86-WOPT-649 86-WOPT-650 86-WOPT-651 86-WOPT-652 86-WOPT-660 86-WOPT-661 86-WOPT-662 86-WOPT-663 86-WOPT-664 86-WOPT-665 86-WOPT-666 86-WOPT-1095

## FORMER BUILDING 88 INVESTIGATION REPORT

TABLE G.1-4

**METHOD BLANK CONTAMINANTS SUMMARY**  
**FORMER NAS MOFFETT FIELD**  
**MOFFETT FIELD, CA**

Method Parameter	Method Blank Contaminant	Affected Soil Samples	Affected Water Samples
VOCs (Continued)	Acetone	86-WOPT-639	
		86-WOPT-640	
		86-WOPT-641	
		86-WOPT-642	
		86-WOPT-643	
		86-WOPT-644	
	Methylene Chloride	86-WOPT-1038	86-WOPT-105
		86-WOPT-1039	86-WOPT-106
		86-WOPT-1047	86-WOPT-107
		86-WOPT-1049	86-WOPT-108
		86-WOPT-1050	86-WOPT-109
		86-WOPT-1051	86-WOPT-110
		86-WOPT-1052	86-WOPT-111
			86-WOPT-112
			86-WOPT-113
			86-WOPT-114
			86-WOPT-115
			86-WOPT-116
			86-WOPT-118
			86-WOPT-119
			86-WOPT-120
			86-WOPT-121
	Cis-1,2-Dichloroethene	Soil samples were not effected.	86-WOPT-515
	Trichloroethene		
	Trichloroethene	Soil samples were not effected.	86-WOPT-540
			86-WOPT-1017
			86-WOPT-1094
			86-WOPT-1096
	Trichloroethene	Soil samples were not effected.	86-WOPT-1091
	Tetrachloroethene		86-WOPT-1092
			86-WOPT-1093
Anions	Nitrite	Not analyzed	86-WOPT-1031
TOC	TOC	Soil samples were not effected.	86-WOPT-601
			86-WOPT-1118
			86-WOPT-1135

**Abbreviations and Acronyms:**

CA - California

NAS - Naval Air Station

TOC - total organic carbon

VOC - volatile organic compound

**APPENDIX H**

**ISOTEC LABORATORY TREATABILITY**  
**STUDY REPORT**

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# **LABORATORY TREATABILITY STUDY REPORT**

**FORMER NAS MOFFETT FIELD  
MOFFETT FIELD, CALIFORNIA**

**JULY 1, 2005**

***PREPARED FOR***

**TETRA TECH FW, INC  
1230 COLUMBIA STREET, SUITE 500  
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***PREPARED BY***

**IN-SITU OXIDATIVE TECHNOLOGIES, INC.  
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**ISOTEC PROJECT NO. 800889**

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## ***Section 1 Executive Summary***

In-Situ Oxidative Technologies, Inc. (ISOTEC<sup>SM</sup>) was retained by Tetra Tech FW, Inc. (TiFW) to conduct an in-situ chemical oxidation (ISCO) bench-scale laboratory treatability study (study) on soil and groundwater samples collected from the Former NAS Moffett Field (MF) site located in Moffett Field, California. Targeted contaminants of concern (COCs) for the study are volatile organic compounds (VOCs), primarily tetrachloroethene (PCE), trichloroethene (TCE) and cis-1,2-dichloroethene (cis-1,2-DCE).

The purpose of the study was to determine the potential effectiveness of ISOTEC's modified Fenton's process to treat COCs in soil and groundwater at the site. The modified Fenton's reagent promotes contaminant destruction via oxidizing and reducing free radicals including hydroxyl radicals, superoxide radicals and hydroperoxide anions.

Samples for the treatability study were collected by TiFW on April 14<sup>th</sup>, 2005 and consisted of site groundwater (CPT-88-3) and soil (CC-88-3). Portions of groundwater and soil samples were then prepared into a slurry [a mixture of composited site soil and groundwater combined into 2 parts to 1 part soil-groundwater slurry (by weight)] for use during the study. Experiments were performed on the groundwater and slurry samples. For the dosages evaluated, treatability study results indicate a greater than 99% VOC reduction in the groundwater sample and up to 82% VOC removal in the slurry sample.

Based on results of the bench-scale treatability study, field-scale application of the modified Fenton's reagent processes is recommended for the MF site.

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## ***Section 2 Study Objectives***

The objectives of the study were as follows:

- Evaluate the COC treatment effectiveness of the modified Fenton's on site-specific samples; and
- Select the most effective reagent dosage for a potential pilot scale application at the site.

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## ***Section 3 Sample Collection and Preparation***

TiFW personnel collected groundwater (CPT-88-3) and soil (CC-88-3) samples on April 14<sup>th</sup>, 2005 from the site and submitted the samples to the ISOTEC facility for performing the treatability study. The samples were stored at <4°C during shipment and at the ISOTEC facility until commencement of the study.

Prior to initiating the study, a portion of each sample was sub-sampled individually and submitted for chemical analyses to gather the initial characteristic data of the sample. Soil sample was analyzed for iron, manganese and total organic carbon (TOC) analyses and groundwater for VOCs, total iron, dissolved iron, total manganese and dissolved manganese. Soil sample was also submitted for initial VOC analysis after combining them into a slurry by mixing 2 parts soil with 1 part groundwater (by weight) representative of the matrix that was tested during the rest of the experiment. This sample was referred to as "SL/INITIAL".

Integrated Analytical Laboratories, LLC. (IAL), a New Jersey certified analytical laboratory performed the analyses.

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## ***Section 4 Laboratory Treatability Study***

Two experiments were performed during the study, one on the groundwater sample (GW-test) and the other on the slurry sample (SL-test). Each experiment consisted of the following four steps:

1. Reagent selection.
2. Establishing experimental control.
3. Experimental setup.
4. Sample analysis.

### ***4.1 Reagent Selection***

The selected reagent for the treatability study is modified Fenton's reagent. It contains a proprietary catalyst and an oxidant. The oxidant used in the reagent was hydrogen peroxide and the catalyst was ISOTEC's patented Catalyst 4260 (Cat-4260). Cat-4260 is a circum-neutral pH (e.g. 5-8) organometallic complex with high mobility within the subsurface. Based on historical contaminant levels noted at the site and previous experience with treatment of the compounds of concern, ISOTEC selected this catalyst for the experiments. The stoichiometric molar ratio of Catalyst 4260 to measured site contaminants was determined and then used to prepare the Catalyst 4260 containing reagents.

### ***4.2 Establishing Experimental Controls***

An experimental "control" sample was set up during each experiment to document the following:

- reduction or changes in concentrations of the target constituents due to sample dilution by reagent volumes injected, and
- reduction in concentrations of the target constituents due to volatilization caused by room temperature test conditions.

The "control" sample was set up exactly the same way, remained at, and was subject to the same conditions as the "treatment" reactors. However, the "control" reactor was injected with distilled water instead of reagent (see Section 4.3 below). The volume of distilled water injected was identical to the volumes of reagent injected into the "treatment" reactors.

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## 4.3 Experimental Setup

### 4.3.1 GW-test

GW-test experiment was performed in four (4) identical 140 milliliters (ml) VOC-tight glass reactors. One of the four reactors served as “control” reactor (see Section 4.2 above) while the remaining three as “treatment” reactors to receive low, medium and high reagent dosages. Exactly 125 ml of groundwater was introduced into each reactor leaving enough headspace for injection of reagent. The reactors were sealed with crimp-top aluminum caps fitted with rubber septa to facilitate reagent injections.

The predetermined amount of modified Fenton’s reagent was injected into each “treatment” reactor as small incremental dosages. The “treatment” reactors received one, two and three dosages to represent low, medium, and high treatment conditions. Each dosage provided an equivalent hydrogen peroxide concentration of 0.4% and catalyst concentration of 1.4 millimoles (mM) in the groundwater being treated. The multiple dosage approach (incremental approach) was used during the test to increase treatment efficiency, minimize gas formation and the resulting pressure buildup. Distilled water was used to compensate the difference of reagent volumes applied between reactors. The “control” reactor received an equivalent volume of distilled water instead of reagent. A time gap of approximately 24 hours was maintained between dosages. All reactors (control and treatment) were left undisturbed for a minimum of 24 hours or until all the peroxide was consumed before analytical sample collection. Analytical samples were collected by individually decanting water from each “control” and “treatment” reactor into 40-ml vials preserved with HCl. Final pH values were measured in each reactor following analytical sample collection.

### 4.3.2 SL-test

The SL-test experiment was performed in four (4) 40-ml VOC-tight glass reactors in duplicates. Again, one of the 4 reactors served as the “control” reactor while the remaining 3 served as “treatment” reactors. Exactly 18 grams (g) of 2:1 slurry (12 g of soil and 6 g of GW) was introduced into each reactor leaving enough headspace for injection of reagent. The reactors were sealed with screw-top caps fitted with Teflon liners.

The predetermined amount of modified Fenton’s reagent was injected into each “treatment” reactor as small incremental dosages. The “treatment” reactors received one, two and three dosages to represent low, medium, and high treatment conditions. Each dosage provided an equivalent hydrogen peroxide concentration of 1.9% and catalyst concentration of 6.9 mM in the supernatant of the slurry being treated. Distilled water was also used to compensate the difference of reagent volumes applied between the reactors. The “control” reactor received an equivalent volume of distilled water instead

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of reagent. Upon completion of the experiment, the “control” and “treatment” reactors were preserved with methanol and submitted for VOC analysis. Final pH values were measured in the associated duplicate reactors.

#### ***4.4 Sample Analysis***

IAL performed all analysis associated with the treatability study. The VOC analysis was performed using EPA method 8260/624, TOC analysis using EPA method 415.1 and iron/ manganese analysis using EPA method 200.8. Analytical results are tabulated in Tables 1 through 3.

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## ***Section 5 Treatability Study Results***

Treatability study results (including the initial characteristics analysis and experiment results) are presented in Tables 1 through 3. Initial characteristics results are presented in Table 1 and discussed in Section 5.1. Experiment results are summarized in Tables 2 and 3 and discussed in Section 5.2. Treatment effectiveness is evaluated by comparison of “treated” sample data with the associated “control” sample data. As discussed in Section 4.2, “control” sample underwent the same conditions as all “treated” samples but received zero dosage of reagent. Therefore, the differences in contaminant concentrations between “treated” samples and the associated “control” sample best represent the treatment effectiveness. For discussion purpose, all non-detect (ND) values are assumed to be equal to zero in the contaminant reduction calculation.

### ***5.1 Initial Characteristics (Table 1)***

A preliminary assessment of site-specific factors that could affect the ISCO process was performed based on TOC, iron and manganese concentrations in site soil, dissolved iron and manganese in site groundwater and VOC concentration in the groundwater and slurry samples (Table 1). A total of three VOC compounds were detected at a cumulative VOC concentration of 4,380 micrograms per liter (ug/L) in groundwater and 7,219 micrograms per kilogram (ug/Kg) in slurry. Concentration of individual compounds are: PCE at 263 ug/L (GW) and 579 ug/Kg (slurry), TCE at 967 ug/L (GW) and 4,060 ug/Kg (slurry) and cis-1,2-DCE at 3,150 ug/L (GW) and 2,580 ug/Kg (slurry).

TOC was present at a relatively low concentration of 930 milligrams per kilogram (mg/Kg) in site soil. Therefore, low reagent doses would be expected due to less competition for oxidant from organic materials present in site soils. Iron in soil was detected at 28,700 mg/Kg and manganese was detected at 330 mg/Kg. Iron and manganese present in site soils could decompose hydrogen peroxide. Iron in its dissolved phase in groundwater is known to be a catalyst to promote Fenton-type reactions. Iron was found at 56,200 ug/L (total) and less than 100 ug/L (dissolved), and manganese was detected at 1,060 ug/L (total) and 281 ug/L (dissolved) in site groundwater. The concentrations of dissolved iron and manganese are too low to function as effective naturally occurring catalysts for the Fenton-type reactions. Therefore, ISOTEC catalyst needs to be applied during field implementation.

### ***5.2 Experiment Results***

Treatability study experiment results are presented in Tables 2 (GW-test) and 3 (SL-test).

**In-Situ Oxidative Technologies, Inc.**

### 5.2.1 GW-Test (Table 2)

Data indicate that the modified Fenton's reagent has successfully treated COCs in site groundwater with greater than 99% total VOCs reduction after the lowest treatment condition (one dose) from 3,924 ug/L to 12.25 ug/L. PCE decreased from 175 ug/L to 0.85 ug/L after the lowest treatment (one dose) and to ND after the medium treatment (2 doses). TCE and cis-1,2-DCE were both reduced to ND from 679 ug/L and 2,990 ug/L, respectively, after the lowest treatment.

Please note that 1,1-dichloroethane (1,1-DCA) persisted after three treatment dosages due to its slower reactivity with free radicals compared to TCE. The absence of double bonds in this compound makes it less vulnerable to free radical attack resulting in 2-3 orders of magnitude lower hydroxyl radical reactivity ( $\text{OH}^\cdot$  reaction rates of  $10^7 \text{ M}^{-1}\text{s}^{-1}$  for 1,1-DCA versus  $>10^9 \text{ M}^{-1}\text{s}^{-1}$  for TCE). Nonetheless, up to 87% reduction of 1,1-DCA from 24.9 ug/L to 3.34 ug/L was achieved after three dosages. Gradually decreasing 1,1-DCA concentrations with increasing treatment dosages indicates that this compound will be eventually destroyed although at a slower rate compared to TCE.

The treatment occurred in the pH range 6.49-6.56 with the control sample present at a pH of 6.51.

### 5.2.2 SL-Test (Table 3)

The data indicate that the modified Fenton's reagent significantly reduced COCs with greater than 82% VOC reduction in the slurry samples. Following three reagent dosages, PCE concentration decreased from 109 ug/Kg to 42 ug/Kg, TCE from 637 ug/Kg to 226 ug/Kg and cis-1,2-DCE from 922 ug/Kg to 49 ug/Kg, which translates to a reduction of 61%, 65% and 95%, respectively. A possible explanation for the persistence of these compounds after three dosages and a slight rebound of TCE and PCE concentrations from sample "SL/T-B" (two doses) to "SL/T-C" (three doses) may be related to sample heterogeneity despite thorough compositing prior to conducting the study. Nonetheless, past experience indicates that additional doses will treat these COCs to ND levels (also based on decreasing trend observed from low to medium treatment).

The treatment occurred in the pH range 6.74-7.32 with the control sample present at a pH of 6.99.

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## ***Section 6 Conclusions***

Treatability study results indicate that ISOTEC's modified Fenton's process was effective towards treatment of the primary COCs in both groundwater and soil. Greater than 99% VOC reduction achieved in the groundwater sample following the lowest treatment conditions with cis-1,2-DCE, TCE and PCE all treated to ND levels following medium treatment. VOC destruction reached up to 82% in the slurry sample following medium treatment conditions.

The data suggests that a pilot study should be conducted at the site to gather additional data on the effectiveness of this remedial alternative on a large-scale basis under field conditions. A pilot application would also serve as an initial step towards complete site remediation.

**In-Situ Oxidative Technologies, Inc.**

## TABLES

**Table 1: Initial Characteristics**  
**TtFW/Former NAS Moffett Field, Moffett Field, California**  
**ISOTEC Project #: 800889**

<b>Sample ID Matrix</b>	<b>CPT-88-3 Aqueous</b>	<b>SL/INITIAL Slurry</b>	<b>CC-88-3 Soil</b>
<b>VOCs (ng/L or ug/Kg)</b>			
1,1-Dichloroethene	ND<18.0	ND<33.0	NA
1,1-Dichloroethane	ND<12.5	ND<595.0	NA
cis-1,2-Dichloroethene	3,150	2,580	NA
Trichloroethene	967	4,060	NA
Tetrachloroethene	263	579	NA
<b>TOTAL VOCs</b>	<b>4,380</b>	<b>7,219</b>	<b>NA</b>
<b>TOTAL TICs</b>	<b>ND</b>	<b>ND</b>	<b>NA</b>
<b>Other Parameters (mg/L or mg/Kg)</b>			
Total Iron (Dissolved Iron)	56.2 (ND<0.1)	NA	28,700
Total Manganese (Dissolved Manganese)	1.06 (0.281)	NA	330
TOC	NA	NA	930

Note:

The above list include the compounds that were detected in at least one sample in the treatability. The entire list of 37 target compounds analyzed, plus TICs, along with chain-of-custody are provided in Appendix 1.

VOCs = volatile organic compounds.

TICs = tentatively identified compounds.

TOC = total organic carbon.

ND = Compound analyzed for but not detected at the method detection limit (MDL).

NA = Compound was not analyzed.

J = Concentration was detected at a value below the MDL.

ug/Kg = micrograms per kilogram. ug/L = micrograms per liter.

mg/Kg = milligrams per kilogram. mg/L = milligrams per liter.

**Table 2. GW-Test Results**  
**TtFW/Former NAS Moffett Field, Moffett Field, California**  
**ISOTEC Project #: 800889**

<b>Sample ID</b>	<b>GW/CONTROL</b>	<b>GW/T-A</b>	<b>GW/T-B</b>	<b>GW/T-C</b>
<b>Catalyst Used</b>	<b>None</b>	<b>Cat-4260</b>	<b>Cat-4260</b>	<b>Cat-4260</b>
<b>Oxidant Used</b>	<b>None</b>	<b>H<sub>2</sub>O<sub>2</sub></b>	<b>H<sub>2</sub>O<sub>2</sub></b>	<b>H<sub>2</sub>O<sub>2</sub></b>
<b># of Treatment</b>	<b>0</b>	<b>1</b>	<b>2</b>	<b>3</b>
<b>VOCs (ug/L)</b>				
1,1-Dichloroethene	55.4	ND<0.36	ND<0.36	ND<0.36
1,1-Dichloroethane	24.9	11.4	6.48	3.34
cis-1,2-Dichloroethene	2,990	ND<0.30	ND<0.30	ND<0.30
Trichloroethene	679	ND<0.35	ND<0.35	ND<0.35
Tetrachloroethene	175	0.854	ND<0.45	ND<0.45
<b>TOTAL VOCs</b>	<b>3,924.3</b>	<b>12.254</b>	<b>6.48</b>	<b>3.34</b>
<b>TOTAL TICs</b>	<b>ND</b>	<b>12.6</b>	<b>41</b>	<b>62.4</b>
<b>% Reduction</b>				
Total VOCs	-	99.7%	99.8%	99.9%
Total TICs	-	-	-	-
<b>Final pH Value</b>	<b>6.51</b>	<b>6.56</b>	<b>6.53</b>	<b>6.49</b>

Note:

The above list include the compounds that were detected in at least one sample in the treatability. The entire list of 37 target compounds analyzed, plus TICs, along with chain-of-custody are provided in Appendix 1.  
VOCs = volatile organic compounds.

TICs = tentatively identified compounds.

H<sub>2</sub>O<sub>2</sub> = hydrogen peroxide.

- = Not analyzed (for pH value), or not calculated (for % Reduction).

ND = Compound analyzed for but not detected at the method detection limit (MDL).

ug/L = micrograms per liter.

All "% reduction" are relative to the "control" sample with assumption of "ND" values equal to zero.

**Table 3. SL-Test Results**  
**TtFW/Former NAS Moffett Field, Moffett Field, California**  
**ISOTEC Project #: 800889**

<b>Sample ID</b>	<b>SL/CONTROL</b>	<b>SL/T-A</b>	<b>SL/T-B</b>	<b>SL/T-C</b>
<b>Catalyst Used</b>	<b>None</b>	<b>Cat-4260</b>	<b>Cat-4260</b>	<b>Cat-4260</b>
<b>Oxidant Used</b>	<b>None</b>	<b>H<sub>2</sub>O<sub>2</sub></b>	<b>H<sub>2</sub>O<sub>2</sub></b>	<b>H<sub>2</sub>O<sub>2</sub></b>
<b># of Treatment</b>	<b>0</b>	<b>1</b>	<b>2</b>	<b>3</b>
<b>VOCs (ug/Kg)</b>				
1,1-Dichloroethene	ND<5.95	ND<5.95	ND<5.95	ND<5.95
1,1-Dichloroethane	ND<5.95	ND<5.95	ND<5.95	ND<5.95
cis-1,2-Dichloroethene	922	116	56	49
Trichloroethene	637	298	200	226
Tetrachloroethene	109	47	36	42
<b>TOTAL VOCs</b>	<b>1,668</b>	<b>461</b>	<b>292</b>	<b>317</b>
<b>TOTAL TICs</b>	<b>ND</b>	<b>ND</b>	<b>ND</b>	<b>ND</b>
<b>% Reduction</b>				
Total VOCs	-	72.4%	82.5%	81.0%
Total TICs	-	-	-	-
<b>Final pH Value</b>	<b>6.99</b>	<b>6.74</b>	<b>6.87</b>	<b>7.32</b>

Note:

The above list include the compounds that were detected in at least one sample in the treatability. The entire list of 37 target compounds analyzed, plus TICs, along with chain-of-custody are provided in Appdendix 1.

VOCs = volatile organic compounds.

TICs = tentatively identified compounds.

H<sub>2</sub>O<sub>2</sub> = hydrogen peroxide.

- = Not analyzed (for pH value), or not calculated (for % Reduction).

ND = Compound analyzed for but not detected at the method detection limit (MDL).

ug/Kg = micrograms per kilogram.

All "% reduction" are relative to the "control" sample with assumption of "ND" values equal to zero.

**APPENDIX I**  
LAB STUDY ANALYTICAL DATA PACKAGES



**APPENDIX I**

**MICROBIAL INSIGHTS TREATABILITY  
STUDY REPORT**

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# Analysis Report

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**Client:** Mark Losi  
Tetra Tech, Inc.  
1940 East Deere Ave  
Suite 200  
Santa Ana, CA 92705

**Phone:** (949) 756-7516

**Fax:** (949) 756-7560

**MI Identifier:** 009CG

**Date Rec:** 07/06/2005

**Report Date:** 08/01/2005

**Client Project #:**

**Client Project Name:** Biotraps

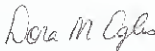
**Analysis Requested:** CENSUS (final), PLFA

**Project:** Biotraps

**Comments:**

All samples within this data package were analyzed under U.S. EPA Good Laboratory Practice Standards: Toxic Substances Control Act (40 CFR part 790). All samples were processed according to standard operating procedures. Test results submitted in this data package meet the quality assurance requirements established by Microbial Insights, Inc.

**Reported By:**



**Reviewed By:**



---

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2340 Stock Creek Blvd. Rockford, TN 37853-3044  
Tel: (865) 573-8188; Fax: (865) 573-8133

**CENSUS**

**Client:** Tetra Tech, Inc.  
**Project:** Biotraps

**MI Project Number:** 009CG  
**Date Received:** 07/06/2005

**Sample Information**

<b>Client Sample ID:</b>	<b>W9-20</b>	<b>W9-46</b>
<b>Sample Date:</b>	07/05/2005	07/05/2005
<b>Units:</b>	cells/bead	cells/bead

**Dechlorinating Bacteria**

Dehalococcoides spp (1)	DHC	<2.5E+01	<2.5E+01
-------------------------	-----	----------	----------

**Phylogenetic Group**

Eubacteria	EBAC	4.29E+07	4.07E+07
Methanogens	MGN	8.76E+05	2.51E+06

**Legend:**

NA = Not Analyzed    NS = Not Sampled    J = Estimated gene copies below PQL but above LQL    I = Inhibited  
< = Result not detected

**Notes:**

1 Bio-Dechlor Census technology was developed by Dr. Loeffler and colleagues at Georgia Institute of Technology and was licensed for use through Regenesys.

vd, Rf t4STON3 TQ 81 50 4ST-43 R0n 0: ( 6d)dR .  
h 00( F6a0: d)( x( ( 00ki d( F6a0: d)( xdd

PESU

Client: Tetra Tech , Inc.  
2310 So 7 013k 0

MI Project Number: 009CG  
c kt 0 S 0 l o R 9F9/R96

# pamDie Information

pamDie Name:	W9-20	W9-46
f k, 0 0 kt o	R 969/R96	R 969/R96
f k, 0 0 kt 3a o	M kl b	M kl b

# gliomaB

N 009M kl	9.y6+708	5.06+706
-----------	----------	----------

# Communit1 ptructure (% total PESU)

m0 0L1 b0h 373 ktba	6.4y	4.74
231t 4MkS: 3k 0l 4s4ba	70.59	67.y8
Dsk 34M6C tk00 l LS 30073 4s4ba	52.29	0.00
f r 7003004, AS 1 b0l 073 ktba	y.56	0.00
u s 300h bktba	7.94	27.89
GLTK341t b000A s40ba	0.00	0.00

# Ph1Bological ptatuB(Proteobacteria on1)

f 0/ l 0 3t/ tU	0.5y	0.00
c S3 kb l 0 3 kM0A	0.06	0.08

# legend:

NA = Not Analyzed NS = Not Sampled

vd. Rf t4STW3 TQ B3 50 4ST-43 R0n G: ( 6d)dR .  
h BQ F6aG: d)( x( ( B0ki dQ F6aG: d)( xdd

PESU

Client: Tetra Tech , Inc.  
2310 So 7 6t3kQ

MI Project Number: 009CG  
c kt Q S 6 l o R 9F9/R36

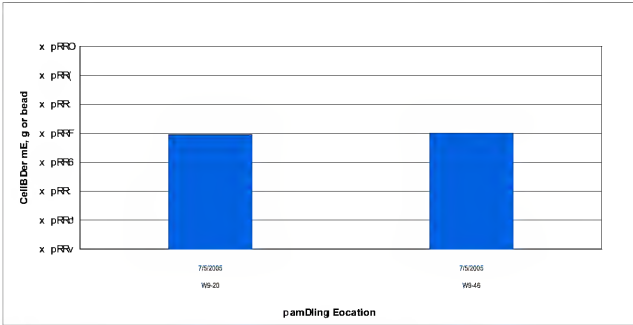


Figure 4. Biomass content is presented as a cell equivalent based on the total amount of phospholipid fatty acids (PLFA) extracted from a given sample. Total biomass is calculated based upon PLFA attributed to bacterial and eukaryotic biomass (associated with higher organisms).

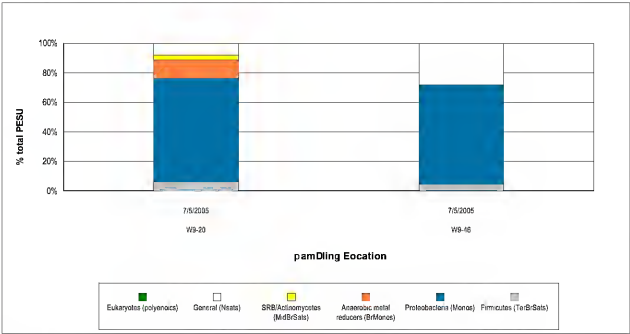


Figure 4. Relative percentages of total PLFA structural groups in the samples analyzed. Structural groups are assigned according to PLFA chemical structure, which is related to fatty acid biosynthesis.

# Analysis Report

---

**Client:** Dennis Goldman  
Tetra Tech , Inc.  
1230 Columbia St  
Suite 500  
San Diego, CA 92101

**Phone:** (619) 234-8696

**Fax:**

**MI Identifier:** 038CD

**Date Rec:** 04/15/2005

**Report Date:** 05/12/2005

**Client Project #:** 1990.086B

**Client Project Name:** Building 88

**Analysis Requested:** CENSUS (final), PLFA

**Project:** Building 88

**Comments:**

All samples within this data package were analyzed under U.S. EPA Good Laboratory Practice Standards: Toxic Substances Control Act (40 CFR part 790). All samples were processed according to standard operating procedures. Test results submitted in this data package meet the quality assurance requirements established by Microbial Insights, Inc.

**Reported By:**

**Reviewed By:**

---

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**MICROBIAL INSIGHTS, INC.**

2340 Stock Creek Blvd. Rockford, TN 37853-3044  
Tel: (865) 573-8188; Fax: (865) 573-8133

**CENSUS**

**Client:** Tetra Tech , Inc.  
**Project:** Building 88

**MI Project Number:** 038CD  
**Date Received:** 04/15/2005

**Sample Information**

Client Sample ID:	CPT-86-3-46*-48*	CPT-86-3-10*-14*	CPT-86-3-12*-13*	CPT-86-3-47*-48*
Sample Date:	04/14/2005	04/14/2005	04/14/2005	04/14/2005
Units:	cells/mL	cells/mL	cells/g	cells/g

**Dechlorinating Bacteria**

Dehalococcoides spp	DHC	2.23E+01	2.22E+04	2.16E+04	1.45E+03
---------------------	-----	----------	----------	----------	----------

**Functional Genes**

BAV1 VC R-Dase	BVC	<1.43E+00	<8.67E+02	<8.85E+02	<9.56E+02
TCE R-Dase	TCE	<1.43E+00	3.97E+03	<8.85E+02	<9.56E+02

**Legend:**

NA = Not Analyzed    NS = Not Sampled    J = Estimated gene copies below PQL but above LQL    I = Inhibited  
< = Result not detected

**Notes:**

1 Bio-Dechlor Census technology was developed by Dr. Loeffler and colleagues at Georgia Institute of Technology and was licensed for use through Regenesys.



**MICROBIAL INSIGHTS, INC.**

2340 Stock Creek Blvd. Rockford, TN 37853-3044  
Tel: (865) 573-8188; Fax: (865) 573-8133

**PLFA**

**Client:** Tetra Tech , Inc.  
**Project:** Building 88

**MI Project Number:** 038CD  
**Date Received:** 04/15/2005

**Sample Information**

Sample Name:	CPT-86-3-46'-48'	CPT-86-3-10'-14'	CPT-86-3-12'-13'	CPT-86-3-47'-48'
Sample Date:	04/14/2005	04/14/2005	04/14/2005	04/14/2005
Sample Metric:	Water	Water	Soil	Soil

**Biomass**

Cells/g		--	6E+06	1.57E+05
Cells/mL	1.92E+06	9.94E+05	--	--

**Community Structure (% total PLFA)**

Firmicutes (TerBrSats)	1.80	4.46	11.66	8.54
Proteobacteria (Monos)	51.71	48.34	31.17	39.71
Anaerobic metal reducers (BrMonos)	0.05	0.35	1.05	0.00
SRB/Actinomycetes (MidBrSats)	0.00	4.53	20.89	0.00
General (Nsats)	41.93	38.79	34.00	45.97
Eukaryotes (polyenoics)	4.51	3.50	1.22	5.78

**Physiological Status (Proteobacteria only)**

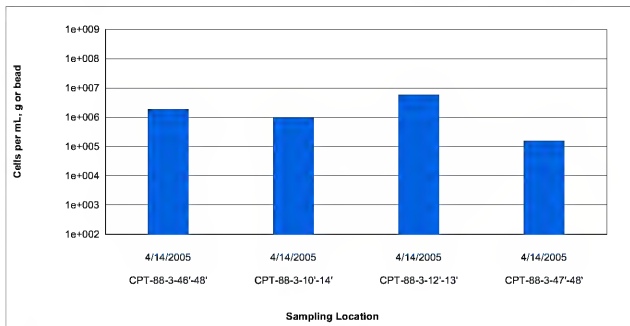
Slowed Growth	0.00	0.14	0.45	0.00
Decreased Permeability	0.30	0.37	0.15	0.00

**Legend:**

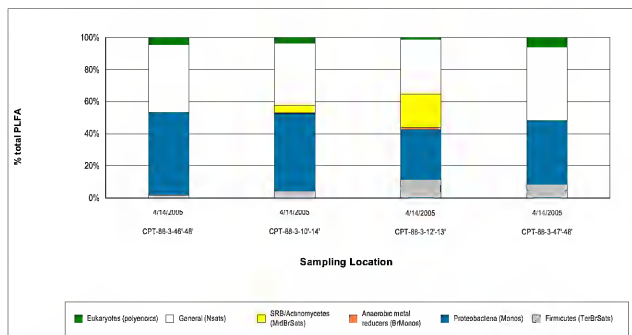
NA = Not Analyzed      NS = Not Sampled

**Client:** Tetra Tech , Inc.  
**Project:** Building 88

**MI Project Number:** 038CD  
**Date Received:** 04/15/2005



**Figure 1.** Biomass content is presented as a cell equivalent based on the total amount of phospholipid fatty acids (PLFA) extracted from a given sample. Total biomass is calculated based upon PLFA attributed to bacterial and eukaryotic biomass (associated with higher organisms).



**Figure 2.** Relative percentages of total PLFA structural groups in the samples analyzed. Structural groups are assigned according to PLFA chemical structure, which is related to fatty acid biosynthesis.

# Analysis Report

---

**Client:** Dennis Goldman  
Tetra Tech , Inc.  
1230 Columbia St  
Suite 500  
San Diego, CA 92101

**Phone:** (619) 234-8696

**Fax:**

**MI Identifier:** 061CD

**Date Rec:** 04/23/2005

**Report Date:** 05/16/2005

**Client Project #:** 1990.086D

**Client Project Name:** Building 88

**Analysis Requested:** CENSUS (final), PLFA

**Project:** Building 88

**Comments:**

All samples within this data package were analyzed under U.S. EPA Good Laboratory Practice Standards: Toxic Substances Control Act (40 CFR part 790). All samples were processed according to standard operating procedures. Test results submitted in this data package meet the quality assurance requirements established by Microbial Insights, Inc.

**Reported By:**

**Reviewed By:**

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**MICROBIAL INSIGHTS, INC.**

2340 Stock Creek Blvd. Rockford, TN 37853-3044  
Tel: (865) 573-8188; Fax: (865) 573-8133

**CENSUS**

**Client:** Tetra Tech , Inc.  
**Project:** Building 88

**MI Project Number:** 061CD  
**Date Received:** 04/23/2005

**Sample Information**

Client Sample ID:	CPT-88-19-6'-9"	CPT-88-19-6'-7"	CPT-88-19-4 7'-50"	CPT-88-19-48'- 49"
Sample Date:	04/22/2005	04/22/2005	04/22/2005	04/22/2005
Units:	cells/mL	cells/g	cells/mL	cells/g

**Dechlorinating Bacteria**

Dehalococcoides spp	DHC	<5.95E-01	<9.84E+02	<5.49E-01	9.72E+02
---------------------	-----	-----------	-----------	-----------	----------

**Functional Genes**

BAV1 VC R-Dase	BVC	<5.95E-01	<9.84E+02	<5.49E-01	<8.87E+02
TCE R-Dase	TCE	<5.95E-01	<9.84E+02	<5.49E-01	<8.87E+02

**Legend:**

NA = Not Analyzed    NS = Not Sampled    J = Estimated gene copies below PQL but above LQL    I = Inhibited  
< = Result not detected

**Notes:**

1 Bio-Dechlor Census technology was developed by Dr. Loeffler and colleagues at Georgia Institute of Technology and was licensed for use through Regensis.

**MICROBIAL INSIGHTS, INC.**

2340 Stock Creek Blvd. Rockford, TN 37853-3044  
Tel: (865) 573-8188; Fax: (865) 573-8133

**PLFA**

**Client:** Tetra Tech , Inc.  
**Project:** Building 88

**MI Project Number:** 061CD  
**Date Received:** 04/23/2005

**Sample Information**

<b>Sample Name:</b>	<b>CPT-88-19-6'-9'</b>	<b>CPT-88-19-6'-7'</b>	<b>CPT-88-19-4'-7'-50'</b>	<b>CPT-86-19-48'-49'</b>
<b>Sample Date:</b>	04/22/2005	04/22/2005	04/22/2005	04/22/2005
<b>Sample Metric:</b>	Water	Soil	Water	Soil

**Biomass**

<b>Cells/g</b>		<b>5.19E+05</b>	<b>--</b>	<b>9.54E+04</b>
<b>Cells/mL</b>	<b>1.04E+06</b>	<b>--</b>	<b>2.31E+06</b>	<b>--</b>

**Community Structure (% total PLFA)**

<b>Firmicutes (TerBrSats)</b>	<b>18.76</b>	<b>25.65</b>	<b>2.55</b>	<b>0.00</b>
<b>Proteobacteria (Monos)</b>	<b>35.70</b>	<b>32.40</b>	<b>61.99</b>	<b>18.66</b>
<b>Anaerobic metal reducers (BrMonos)</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>SRB/Actinomycetes (MidBrSats)</b>	<b>17.96</b>	<b>7.01</b>	<b>0.17</b>	<b>0.00</b>
<b>General (Nsats)</b>	<b>25.79</b>	<b>34.93</b>	<b>30.15</b>	<b>81.35</b>
<b>Eukaryotes (polyenoics)</b>	<b>1.80</b>	<b>0.00</b>	<b>5.14</b>	<b>0.00</b>

**Physiological Status (Proteobacteria only)**

<b>Slowed Growth</b>	<b>0.90</b>	<b>1.77</b>	<b>0.04</b>	<b>0.00</b>
<b>Decreased Permeability</b>	<b>0.24</b>	<b>0.00</b>	<b>0.31</b>	<b>0.00</b>

**Legend:**

NA = Not Analyzed      NS = Not Sampled

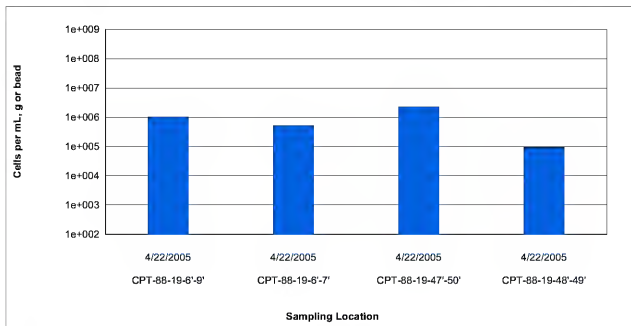
Client: Tetra Tech, Inc.  
Project: Building 88MI Project Number: 061CD  
Date Received: 04/23/2005

Figure 1. Biomass content is presented as a cell equivalent based on the total amount of phospholipid fatty acids (PLFA) extracted from a given sample. Total biomass is calculated based upon PLFA attributed to bacterial and eukaryotic biomass (associated with higher organisms).

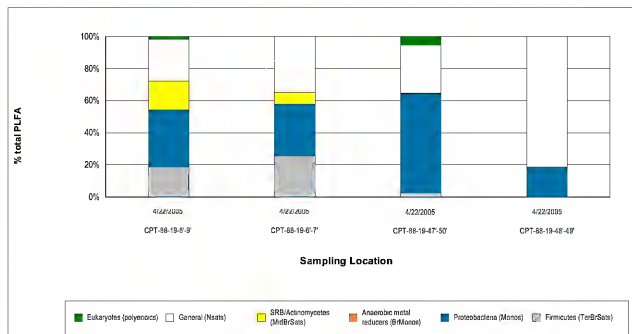


Figure 2. Relative percentages of total PLFA structural groups in the samples analyzed. Structural groups are assigned according to PLFA chemical structure, which is related to fatty acid biosynthesis.

# Phospholipid Fatty Acid Analysis

## Interpretation Guidelines

Phospholipids fatty acids (PLFA) are a main component of the membrane (essentially the "skin") of microbes and provide a powerful tool for assessing microbial responses to changes in their environment. This type of analysis provides direct information for assessing and monitoring sites where bioremediation processes, including natural attenuation, are of interest. Analysis of the types and amount of PLFA provides a broad based understanding of the entire microbial community with information obtained in three key areas viable biomass, community structure and metabolic activity.

### *What is the detection limit for PLFA?*

Our limit of detection for PLFA analysis is ~50 picomoles of total PLFA and our limit of quantification is ~150 picomoles of total PLFA. Samples which contain PLFA amounts at or below 50 pmol cannot be used to determine biomass, likewise samples with PLFA content below ~150 pmol are generally considered to contain too few fatty acids to discuss community composition.

### *How should I interpret the PLFA results?*

Interpreting the results obtained from PLFA analysis can be somewhat difficult, so this document was designed to provide a technical guideline. For convenience, this guideline has been divided into the three key areas.

## **Viable Biomass**

PLFA analysis is one of the most reliable and accurate methods available for the determination of viable microbial biomass. Phospholipids break down rapidly upon cell death (21, 23), so biomass calculations based on PLFA content do not contain 'fossil' lipids of dead cells.

### *How is biomass measured?*

Viable biomass is determined from the total amount of PLFA detected in a given sample. Since, phospholipids are an essential part of intact cell membranes they provide an accurate measure of viable cells.

### *How is biomass calculated?*

Biomass levels are reported as cells per gram, mL or bead, and are calculated using a conversion factor of 20,000 cells/pmol of PLFA. This conversion factor is based upon cells grown in laboratory media, and varies somewhat with the type of organism and environmental conditions.

### *What does the concentration of biomass mean?*

The overall abundance of microbes within a given sample is often used as an indicator of the potential for bioremediation to occur, but understanding the levels of biomass within each sample can be cumbersome. The following are benchmarks that can be used to understand whether the biomass levels are low, moderate or high.

Low	Moderate	High
$10^3$ to $10^4$ cells	$10^5$ to $10^6$ cells	$10^7$ to $10^8$ cells

### ***How do I know if a change in biomass is significant?***

One of the primary functions of using PLFA analysis at contaminated sites is to evaluate how a community responds following a given treatment, but how does one know if the changes observed between two events are significant? As a general rule, biomass levels which increase or decrease by at least an order of magnitude are considered to be significant. However, changes in biomass levels of less than an order of magnitude may still show a trend. It is important to remember that many factors can affect microbial growth, so factors other than the treatment could be influencing the changes observed between sampling events. Some of the factors to consider are: temperature, moisture, pH, etc. The following illustration depicts three types of changes that occurred over time and the conclusions that could be drawn.

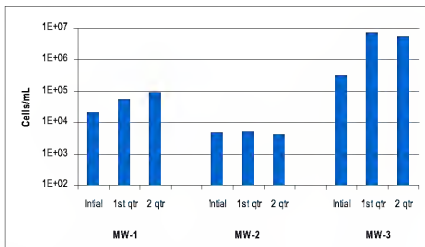


Figure 1. Biomass content is presented as a cell equivalent based on the total amount of phospholipid fatty acids (PLFA) extracted from a given sample. Total biomass is calculated based upon PLFA attributed to bacterial and eukaryotic biomass (associated with higher organisms).

### **Conclusions from graph above:**

- MW-1 showed a trend of biomass levels increasing steadily over time, although cell concentrations were  $\sim 10^4$  cells/mL at each sampling event.
- MW-2 showed no notable trends or significant changes in biomass concentrations.
- MW-3 showed a significant increase in biomass levels between the initial and 1<sup>st</sup> quarter sampling events (from  $\sim 10^5$  to  $\sim 10^7$  cells/mL).



## Community Structure:

The PLFA in a sample can be separated into particular types, and the resulting PLFA "profile" reflects the proportions of the categories of organisms present in the sample. Because groups of bacteria differ in their metabolic capabilities, determining which bacterial groups are present and their relative distributions within the community can provide information on what metabolic processes are occurring at that location. This in turn can also provide information on the subsurface conditions (i.e. oxidation/reduction status, etc.). Table 1 describes the six major structural groups used and their potential relevance to site specific projects.

Table 1. Description of PLFA structural groups.

PLFA Structural Group	General classification	Potential Relevance to Bioremediation Studies
Monoenoic (Monos)	Abundant in Proteobacteria (Gram negative bacteria), typically fast growing, utilize many carbon sources, and adapt quickly to a variety of environments.	Proteobacteria is one of the largest groups of bacteria and represents a wide variety of both aerobes and anaerobes. The majority of Hydrocarbon utilizing bacteria fall within the Proteobacteria
Terminally Branched Saturated (TerBrSats)	Characteristic of Firmicutes (Low G+C Gram-positive bacteria), and also found in Bacteroides, and some Gram-negative bacteria (especially anaerobes).	Firmicutes are indicative of presence of anaerobic fermenting bacteria (mainly <i>Clostridia/Bacteroides</i> -like), which produce the $H_2$ necessary for reductive dechlorination
Branched Monoenoic (BrMonos)	Found in the cell membranes of micro-aerophiles and anaerobes, such as sulfate- or iron-reducing bacteria	In contaminated environments high proportions are often associated with anaerobic sulfate and iron reducing bacteria
Mid-Chain Branched Saturated (MidBrSats)	Common in sulfate reducing bacteria and also Actinobacteria (High G+C Gram-positive bacteria).	In contaminated environments high proportions are often associated with anaerobic sulfate and iron reducing bacteria
Normal Saturated (Nsats)	Found in all organisms.	High proportions often indicate less diverse populations.
Polyenoic	Found in eukaryotes such as fungi, protozoa, algae, higher plants, and animals	Eukaryotic scavengers will often rise up and prey on contaminant utilizing bacteria

Following are answers to some of the common questions about community composition and some detailed descriptions of some typical shifts which can be observed between sampling events.

### How is the community structure data presented?

Community structure data is presented as percentage (%) of the total amount of PLFA. In order to relate the complex mixture of PLFA to the organisms present, the ratio of a specific PLFA group is determined (detailed in Table 1 above), and this corresponds to the proportion of the related bacterial classification within the overall community structure. Because normal saturated PLFA are found in both prokaryotes (bacteria) and eukaryotes (fungi, protozoa, diatoms etc), their distribution provides little insight into the types of microbes that are present at a sampling location. However, high proportions of normal saturates are often associated with less diverse microbial populations.

### How can community structure data be used to manage my site?

It is important to understand that microbial communities are often a mixture of different types of bacteria (e.g. aerobes, sulfate reducers, methanogens, etc) with the abundance of each group behaving like a seesaw, i.e. as the population of one group increases, another is likely decreasing, mostly due to competition for available resources. The PLFA profile of a sample provides a "fingerprint" of the microbial community, showing relative proportions of the specific bacterial types at the time of sampling. This is a great tool for detecting shifts within the community over time and also to evaluate similarities/differences between sampling locations. It is important to note that PLFA analysis of community structure is analyzing the microbes directly, not just secondary breakdown products. So this provides evidence of how the entire microbial community is responding to the treatment.

### How do I recognize community shifts and what they mean?

Shifts in the community structure are indications of changing conditions and their effect on the microbial community, and, by extension on the metabolic processes occurring at the sampling location. Some of the more commonly seen shifts within the community are illustrated and discussed below:

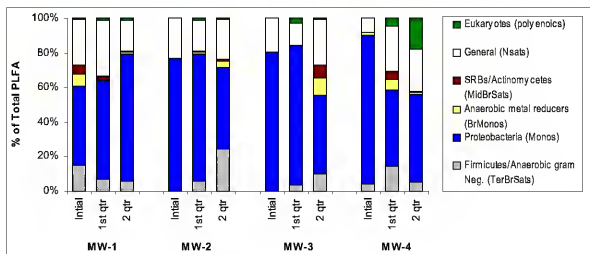


Figure 2. Relative percentages of total PLFA structural groups in the samples analyzed. Structural groups are assigned according to PLFA chemical structure, which is related to fatty acid biosynthesis. See Table 1 for detailed descriptions of structural groups.

#### • Increased Proteobacteria

Proportions of Proteobacteria are of interest because it is one of the largest groups of bacteria and represents a wide variety of both aerobic and anaerobes. The majority of hydrocarbons (including benzene and naphthalene) are metabolized by some member of Proteobacteria, mainly due to their ability to grow opportunistically, quickly taking advantage of available food (i.e. hydrocarbons), and adapting quickly to changes in the environment. The detection of increased proportions of Proteobacteria coupled with increased biomass suggests that the Proteobacteria are consuming something. In situations where it is important to determine the extent to which the Proteobacteria are utilizing anaerobic or aerobic pathways, it is possible to measure relative proportions of specific biomarkers that are associated with anaerobic or aerobic pathways thus separating the Proteobacteria into different groups, based on pathways used. Sample MW-1 from Figure 2 depicts a shift in community structure where the proportion of Proteobacteria has increased over time.

#### • Increased Firmicutes/Anaerobic Gram negative bacteria

Increased proportions of Firmicutes/Anaerobic Gram negative bacteria generally indicate that conditions are becoming more reductive (i.e. more anaerobic). Proportions of Firmicutes are of particular interest in sites contaminated with chlorinated hydrocarbons because Firmicutes include anaerobic fermenting bacteria (mainly *Clostridia*/*Bacteriodes*-like), which produce the  $H_2$  necessary for reductive dechlorination.

Enhanced bioremediation of chlorinated solvents often employs the injection of fermentable substrates which, when utilized by fermenting bacteria, results in the release of  $H_2$ . Engineered shifts in the microbial community can be shown by observing increased proportions Firmicutes following an injection of fermentable substrate. Through long-term monitoring of the community structure it is possible to know when re-injection may be necessary or desirable. Sample MW-2 from Figure 2 depicts a shift in community structure where the proportion of Firmicutes has increased over time.

- **Increased anaerobic metal reducing bacteria (BrMonos) and SRB/Actinomycetes (MidBrSats)**

An increase in the proportions of metal and sulfate reducing bacterial groups, especially when combined with shifts in the other bacterial groups, can provide information helpful to monitoring bioremediation. Generally, an increase in metal and sulfate reducers points to more reduced (anaerobic) conditions at the sampled location. This is especially true if there is an increase in Firmicutes at the same time. Large increases in either metal and sulfate reducers, particularly if accompanied by a decrease in Firmicutes, may suggest that conditions are becoming increasingly reduced. In this situation the metal and sulfate reducers may be out-competing dechlorinators for available  $H_2$  thereby limiting the potential for reductive dechlorination at that location. Sample MW-3 from Figure 2 depicts a shift in community structure where the proportion of metal reducing bacteria has increased over time.

- **Increased Eukaryotes**

Eukaryotes include organisms such as fungi, protozoa, and diatoms. At a contaminated location, an increase in eukaryotes, particularly if seen with a decrease in the contaminant utilizing bacteria, suggests that eukaryotic scavengers are preying upon what had been an abundance of bacteria which were consuming the contaminant. Sample MW-4 from Figure 2 depicts a shift in community structure where the proportion of eukaryotes has increased over time.

### **Physiological status of Proteobacteria**

The membrane of a microbe adapts to the changing conditions of its environment, and these changes are reflected in the PLFA. Toxic compounds or environmental conditions may disrupt the membrane and some bacteria respond by making *trans* fatty acids instead of the usual *cis* fatty acids (7) in order to strengthen the cell membrane, making it less permeable. Many Proteobacteria respond to lack of available substrate or to highly toxic conditions by making cyclopropyl (7) or mid-chain branched fatty acids (20) which point to less energy expenditure and a slowed growth rate. The physiological status ratios for Decreased Permeability (trans/cis ratio) and for Slowed Growth (cy/cis ratio) are based on dividing the amount of the fatty acid induced by environmental conditions by the amount of its biosynthetic precursor.

#### ***What does slowed growth or decreased permeability mean?***

Ratios for slowed growth and for decreased permeability of the cell membrane provide information on the "health" of the Gram negative community, that is, how this population is responding to the conditions present in the environment. It should be noted that one must be cautious when interpreting these measures from only one sampling event. The most effective way to use the physiological status indicators is in long term monitoring and comparing how these ratios increase/decrease over time.

A marked increase in either of these ratios suggests a change in environment which is less favorable to the Gram negative Proteobacteria population. The ratio for slowed growth is a relative measure, and does not directly correspond to log or stationary phases of growth, but is useful as a comparison of growth rates among sampling locations and also over time. An increase in this ratio (i.e. slower growth rate) suggests a change in conditions which is not as supportive of rapid, "healthy" growth of the Gram negative population, often due to reduced available substrate (food). A larger ratio for decreased permeability suggests that the environment has become more toxic to the Gram negative population, requiring energy expenditure to produce *trans* fatty acids in order to make the membrane more rigid.

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# Analysis Report

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**Client:** Dennis Goldman  
Tetra Tech, Inc.  
1230 Columbia St  
Suite 500  
San Diego, CA 92101

**Phone:** (619) 471-3543

**Fax:** (619) 471-3577

**MI Identifier:** 006CF

**Date Rec:** 06/02/2005

**Report Date:** 06/23/2005

**Client Project #:** 1990.086E

**Client Project Name:** CTO 86

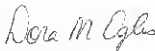
**Analysis Requested:** CENSUS (final), PLFA

**Project:** CTO 86

**Comments:**

All samples within this data package were analyzed under U.S. EPA Good Laboratory Practice Standards: Toxic Substances Control Act (40 CFR part 790). All samples were processed according to standard operating procedures. Test results submitted in this data package meet the quality assurance requirements established by Microbial Insights, Inc.

**Reported By:**

A handwritten signature in black ink, appearing to read 'David M. Cagle'.

**Reviewed By:**

A handwritten signature in black ink, appearing to read 'Greg A. Davis'.

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**NOTICE:** This report is intended only for the addressee shown above and may contain confidential or privileged information. If the recipient of this material is not the intended recipient or if you have received this in error, please notify Microbial Insights, Inc. immediately. The data and other information in this report represent only the sample(s) analyzed and are rendered upon condition that it is not to be reproduced without approval from Microbial Insights, Inc. Thank you for your cooperation.

**MICROBIAL INSIGHTS, INC.**

2340 Stock Creek Blvd. Rockford, TN 37853-3044

Tel: (865) 573-8188; Fax: (865) 573-8133

**CENSUS**

**Client:**      **Detrit Deca hinc,**  
**Project:**     CTU 86

**MI Project Number:**    003C8  
**Date Received:**        06/02/2005

**STm2le InformTtion**

Client STm2le Ip:	. -460 Control	. -460 TctTte	. -460 MoIT11e1	. -460 7 gC	. -460 E7 C
Sap Me Date:	06/01/2005	06/01/2005	06/01/2005	06/01/2005	06/01/2005
g/ ltm	cell/mVead	cell/mVead	cell/mVead	cell/mVead	cell/mVead

**pecalorinTtinB + TcteriT**

DeAilococoidemmm	DHC	s2.5Lb01	s2.5Lb01	s2.5Lb01	s2.5Lb01	s2.5Lb01
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**Pa5loBenetic Frou2**

LGMcteria	LByC	GsE907	6,- 7E907	3,33E907	s,8E907	GG-E907
Ee(Aa/ ohe/ m	EwN	5,6-E90s	G3E905	3,6-E90s	-,53E90s	s,83E90s

**Legend:**

NA = Not Analyzed    NS = Not Sampled    J = Estimated gene copies below PQL but above LQL    I = Inhibited

&lt; = Result not detected

**Notes:**

1 Bio-Dechlor Census technology was developed by Dr. Loeffler and colleagues at Georgia Institute of Technology and was licensed for use through Regeneration.

**MICROBIAL INSIGHTS, INC.**

2340 Stock Creek Blvd. Rockford, TN 37853-3044  
Tel: (865) 573-8188; Fax: (865) 573-8133

**CENSUS**

**Client:** Tetra Tech , Inc.  
**Project:** CTO 86

**MI Project Number:** 006CF  
**Date Received:** 06/02/2005

**Sample Information**

Client Sample ID:	W9-46 Control	W9-46 Lactate	W9-46 Molasses	W9-46 HRC	W9-46 EHC
Sample Date:	06/01/2005	06/01/2005	06/01/2005	06/01/2005	06/01/2005
Units:	cells/bead	cells/bead	cells/bead	cells/bead	cells/bead

**Dechlorinating Bacteria**

Dehalococcoides spp	DHC	<2.5E+01	1.45E+02	<2.5E+01	4.52E+01	<2.5E+01
---------------------	-----	----------	----------	----------	----------	----------

**Phylogenetic Group**

Eubacteria	EBAC	1.67E+07	2.17E+07	7.71E+07	8.18E+07	1.25E+07
Methanogens	MGN	9.68E+04	4.75E+05	2.29E+06	1.12E+06	3.09E+05

**Legend:**

NA = Not Analyzed    NS = Not Sampled    J = Estimated gene copies below PQL but above LQL    I = Inhibited  
< = Result not detected

**Notes:**

1 Bio-Dechlor Census technology was developed by Dr. Loeffler and colleagues at Georgia Institute of Technology and was licensed for use through Regeneration.

2340 Stock Creek Blvd. Rockford, TN 37853-3044  
Tel: (865) 573-8188; Fax: (865) 573-8133

PLFA

Client: Tetra Tech, Inc.  
Project: CTu 86

MI Project Number: 006CF  
Date Received: 06/02/2005

# Sample Information

Sample Name:	W9-20 Control	W9-20 Lactate	W9-20 Molasses	W9-20 HRC	W9-20 EHC
Sag / le Date:	06/01/2005	06/01/2005	06/01/2005	06/01/2005	06/01/2005
Sag / le metric:	peadM	peadM	peadM	peadM	peadM

# Biomass

CellM	pead	3.1E+04	4.27E+05	3.89E+06	2.46E+06	2.3E+06
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# Community Structure (% total PLFA)

Flr g loWeM(TerBrSatM)	0.00	17.51	13.93	16.91	3.16
Proteopactena (mosolM)	68.17	61.03	53.13	51.58	52.76
Lsaeropl c g etal WeerM(BrmosolM)	0.00	1.37	1.28	2.73	2.71
SRBrLctisog bceleM(mldBrSatM)	0.00	1.68	1.55	3.88	0.51
Aeseral (NlctM)	23.42	17.68	27.34	22.71	36.59
y WarbotaM(/ olbesoicM)	6.39	0.72	2.78	2.18	4.29

# Physiological Status (Proteobacteria only)

SloGed AroGIE	0.31	0.13	0.08	0.02	0.07
DecreaMed Perg esplltb	0.00	0.06	0.04	0.03	0.04

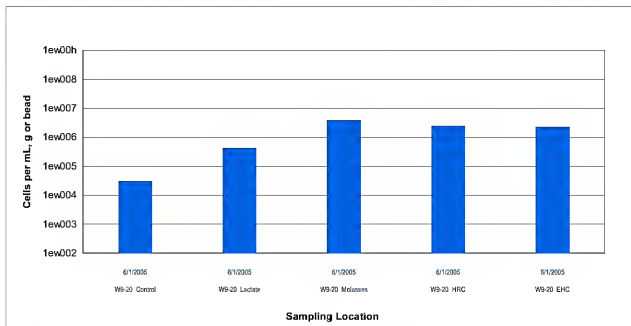
# Legend:

NA = Not Analyzed      NS = Not Sampled

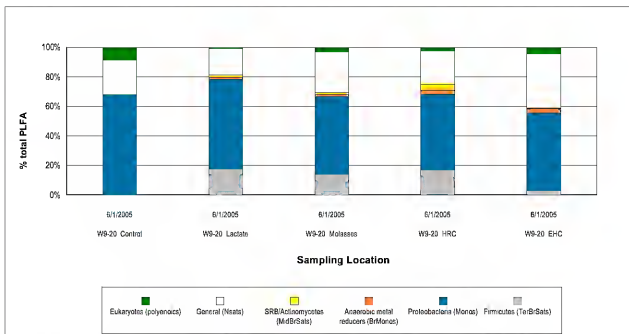


Client: Tetra Tech, Inc.  
Project: CTu 86

MI Project Number: 006CF  
Date Received: 06r02r2005



**Figure 4.** Biomass content is presented as a cell equivalent based on the total amount of phospholipid fatty acids (PLFA) extracted from a given sample. Total biomass is calculated based upon PLFA attributed to bacterial and eukaryotic biomass (associated with higher organisms).



**Figure 4.** Relative percentages of total PLFA structural groups in the samples analyzed. Structural groups are assigned according to PLFA chemical structure, which is related to fatty acid biosynthesis.

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Tel: (865) 573-8188; Fax: (865) 573-8133

PLFA

Client: Tetra Tech, Inc.  
Project: CTO 86

MI Project Number: 006CF  
Date Received: 06/02/2005

#### Sample Information

Sample Name:	W9-46 Control	W9-46 Lactate	W9-46 Molasses	W9-46 HRC	W9-46 EHC
Sample Date:	08/01/2005	06/01/2005	08/01/2005	08/01/2005	06/01/2005
Sample Metric:	beads	beads	beads	beads	beads

#### Biomass

Cells/bead	1.31E+05	7.24E+05	1.12E+07	2.51E+06	2.01E+06
------------	----------	----------	----------	----------	----------

#### Community Structure (% total PLFA)

Firmicutes (TerBrSats)	16.48	16.19	28.16	38.84	9.03
Proteobacteria (Monos)	60.33	54.75	39.06	24.16	46.22
Anaerobic metal reducers (BrMonos)	1.03	0.92	1.62	3.24	2.59
SRB/Actinomyceles (MidBrSats)	0.00	3.51	5.50	21.84	2.14
General (Nsats)	20.52	22.98	23.38	10.59	34.20
Eukaryotes (polyenoics)	1.63	1.63	2.27	1.31	5.79

#### Physiological Status (Proteobacteria only)

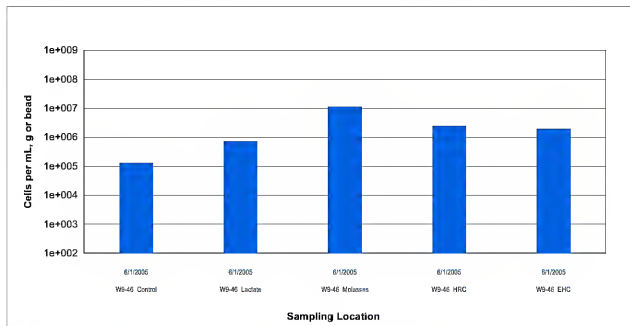
Slowed Growth	0.17	0.07	0.25	0.00	0.10
Decreased Permeability	0.04	0.03	0.05	0.04	0.21

#### Legend:

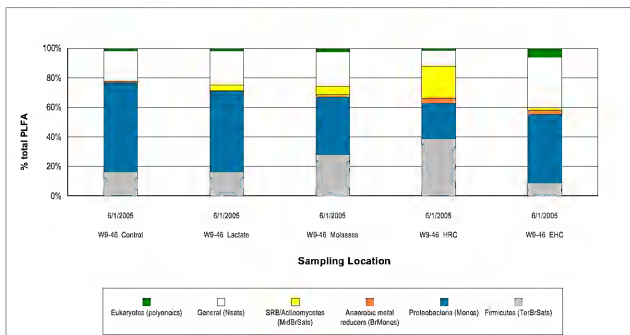
NA = Not Analyzed      NS = Not Sampled

Client: Tetra Tech, Inc.  
Project: CTO 86

MI Project Number: 006CF  
Date Received: 06/02/2005



**Figure 4.** Biomass content is presented as a cell equivalent based on the total amount of phospholipid fatty acids (PLFA) extracted from a given sample. Total biomass is calculated based upon PLFA attributed to bacterial and eukaryotic biomass (associated with higher organisms).



**Figure 5.** Relative percentages of total PLFA structural groups in the samples analyzed. Structural groups are assigned according to PLFA chemical structure, which is related to fatty acid biosynthesis.